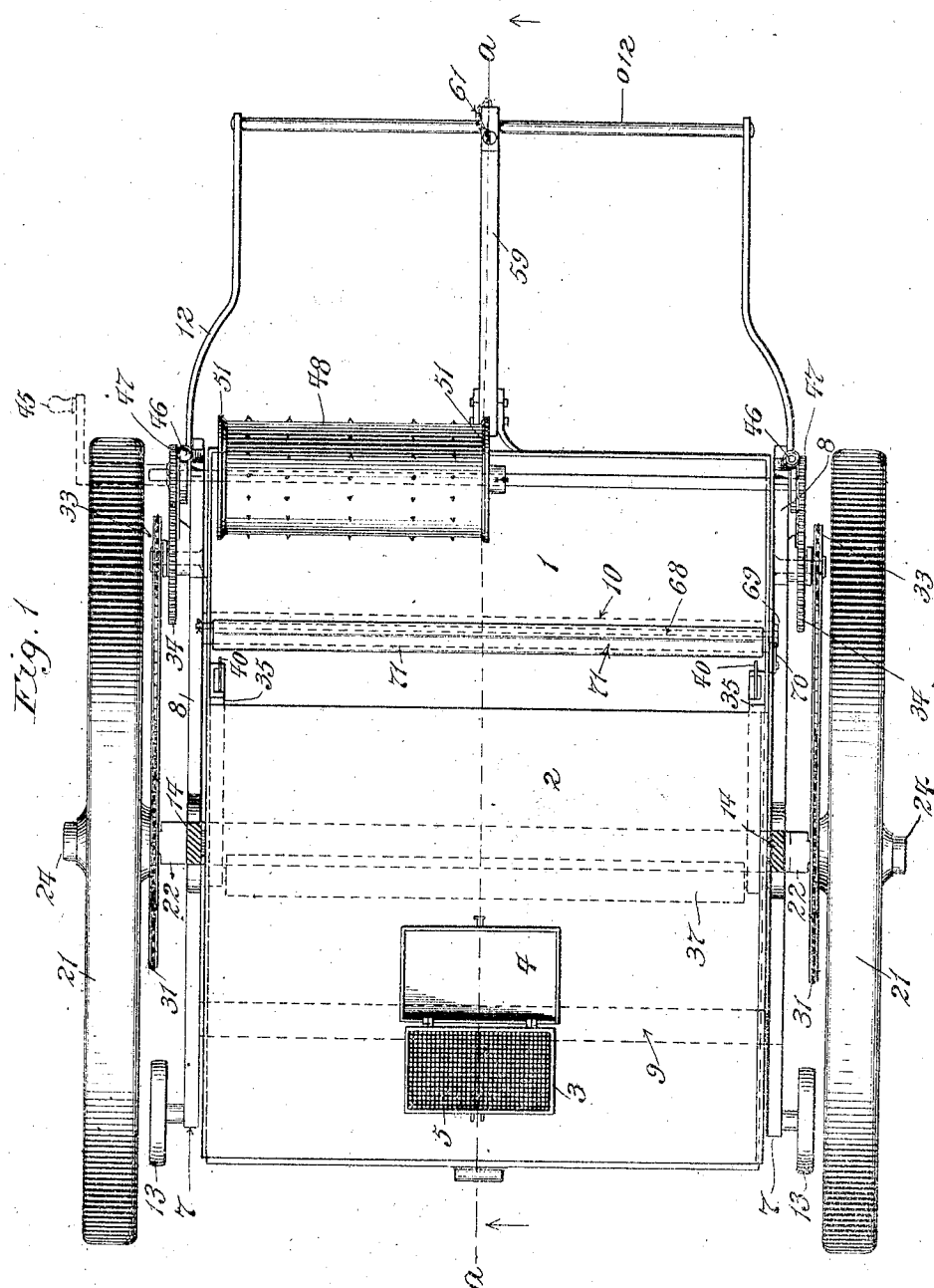


1,058,315.

4 SHEETS--SHEET 1.



Witnesses:
Benjamin A. Weston
William C. Burr

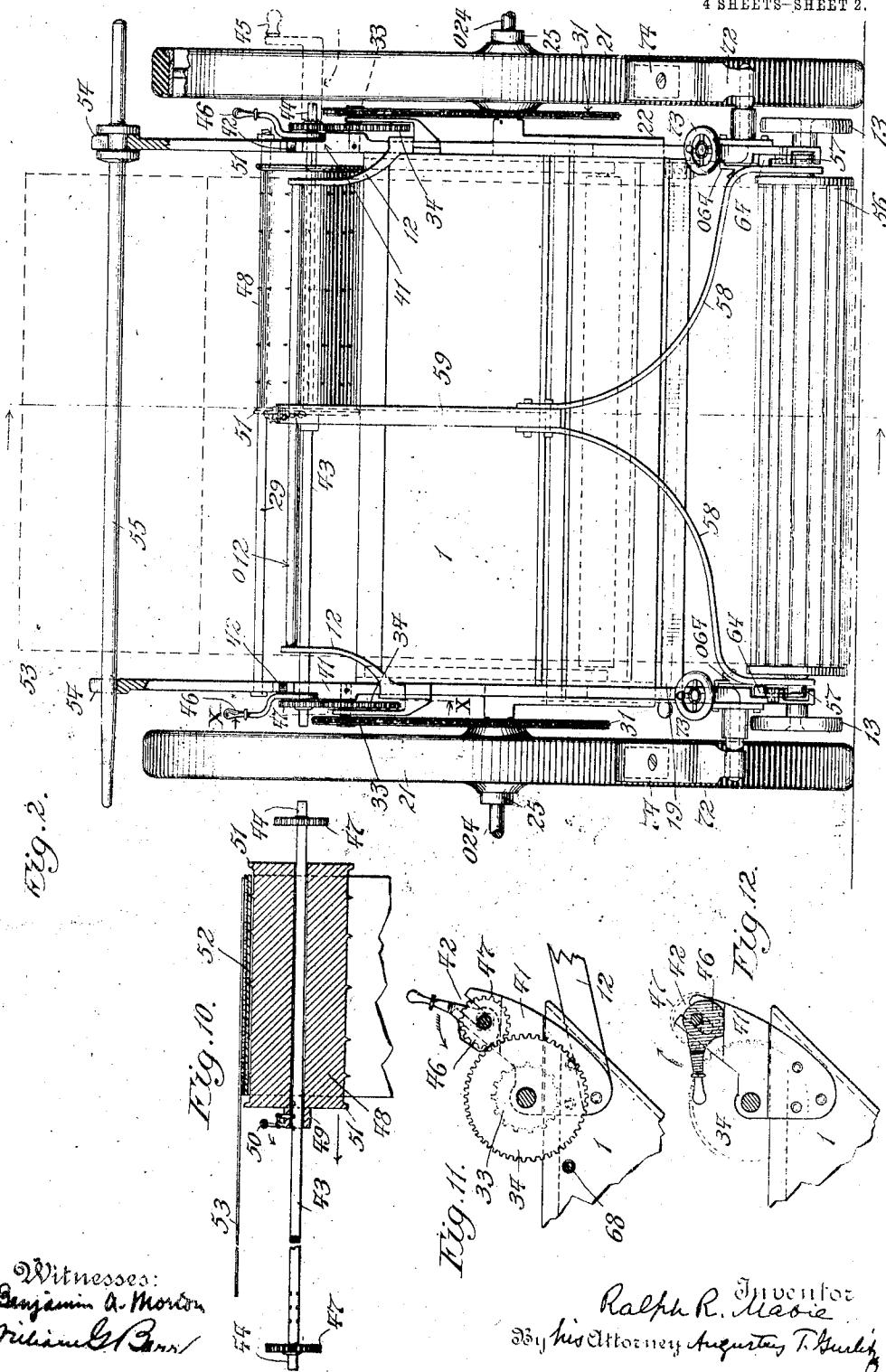
Inventor
Ralph R. Measia
By his Attorney Augustus T. Smith

R. R. MABIE.
MACHINE FOR WATERPROOFING ROOFS, FLOORS, &c.
APPLICATION FILED APR. 28, 1910.

1,058,315.

Patented Apr. 8, 1913.

4 SHEETS-SHEET 2.



Witnesses:
Benjamin A. Morton
William C. Bann

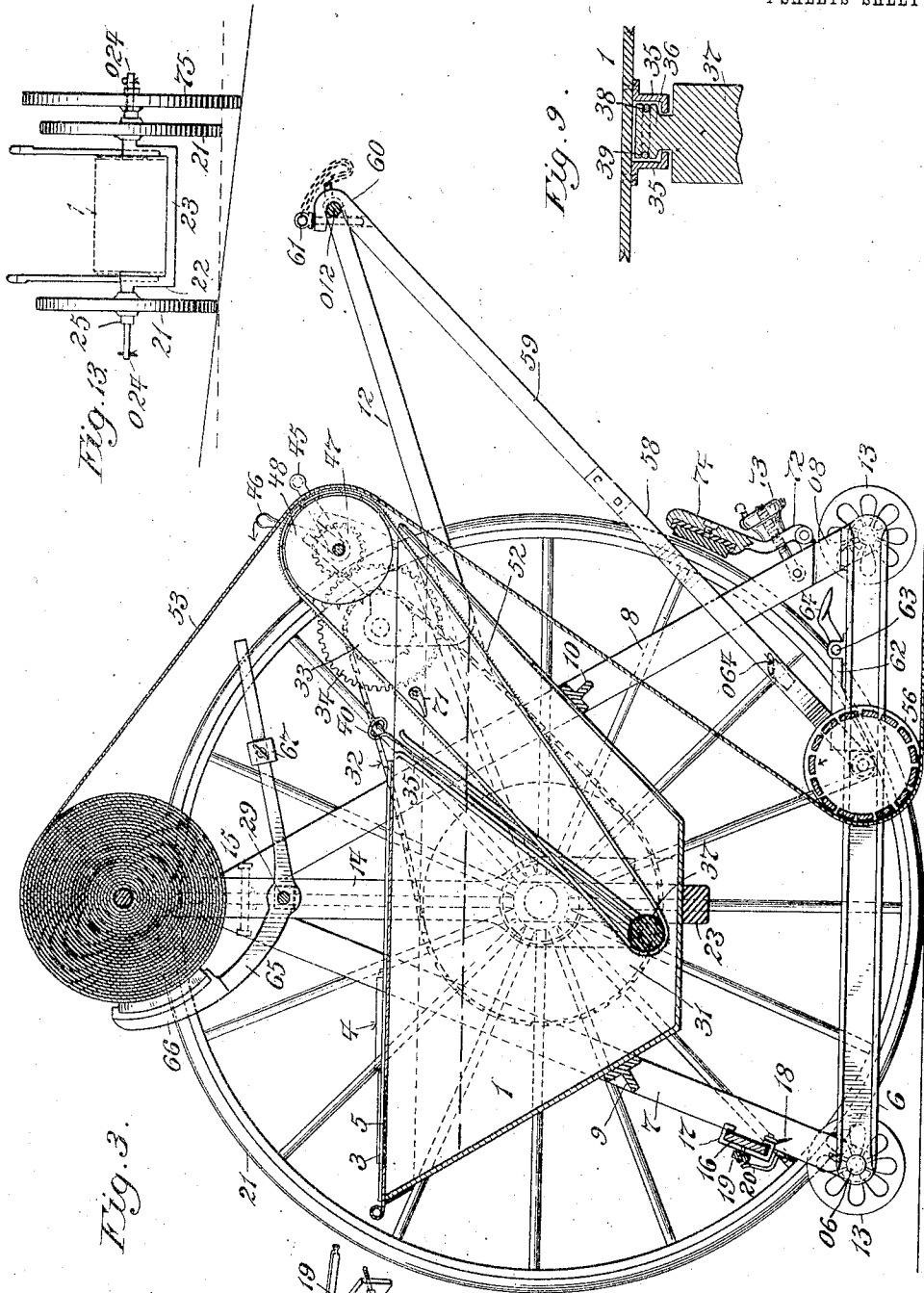
Ralph R. Mabie
By his Attorney Augustus T. Buckley

R. R. MABIE.
MACHINE FOR WATERPROOFING ROOFS, FLOORS, &c.
APPLICATION FILED APR. 28, 1910,

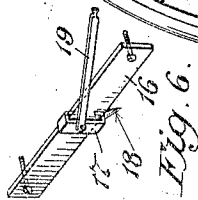
1,058,315.

Patented Apr. 8, 1913.

4 SHEETS—SHEET 3.



Witnesses:
Benjamin L. Morton
William L. Barr



Ralph R. Mabie Inventor
By his Attorneys, Augustus T. Smith

R. R. MABIE.
MACHINE FOR WATERPROOFING ROOFS, FLOORS, &c.
APPLICATION FILED APR. 28, 1910.

1,058,315.

Patented Apr. 8, 1913.

4 SHEETS—SHEET 4.

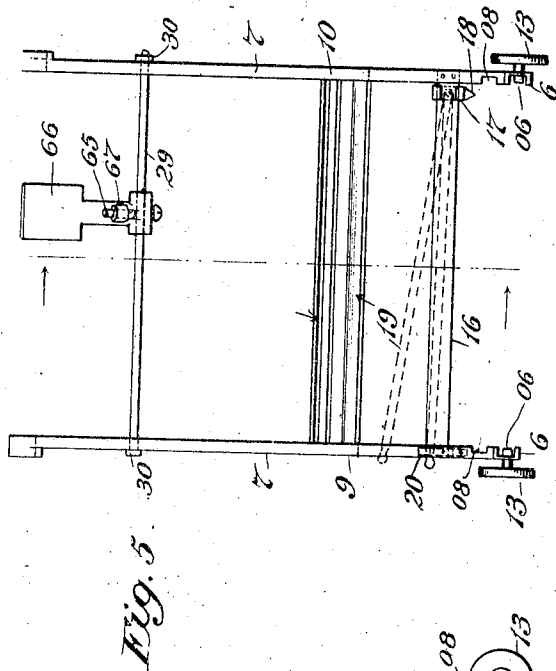


Fig. 5.

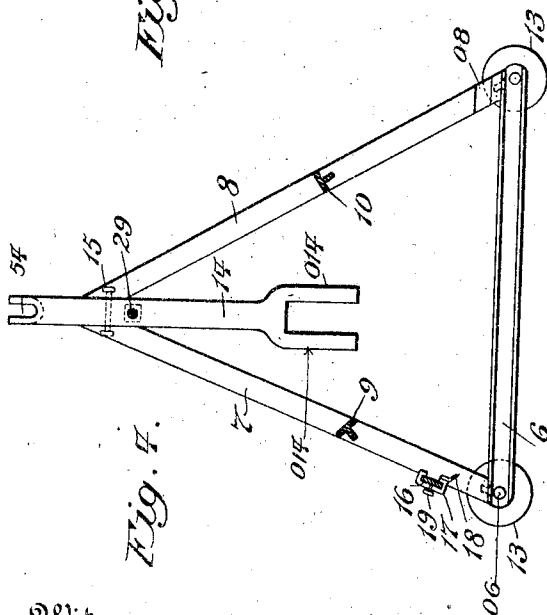


Fig. 7.

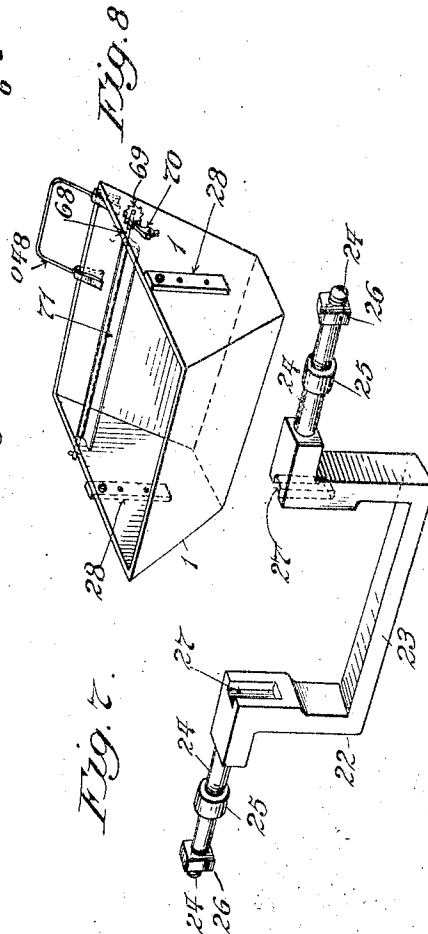


Fig. 8.

Witnesses:
Benjamin A. Morton
William K. Barr

Inventor
Ralph R. Mabie
By his Attorney Augustus T. Gaultz

UNITED STATES PATENT OFFICE.

RALPH R. MABIE, OF NEW ROCHELLE, NEW YORK.

MACHINE FOR WATERPROOFING ROOFS, FLOORS, &c.

1,058,315.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed April 23, 1910. Serial No. 558,213.

To all whom it may concern:

Be it known that I, RALPH R. MABIE, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented a certain new and useful Machine for Waterproofing Roofs, Floors, &c., of which the following is a specification, reference being had to the accompanying drawings and the characters of reference thereon, which form part of this specification.

My invention relates to an improvement in the art of waterproofing, and to a machine which is adapted for laying waterproofing material upon roofs, floors, etc., and coating the covering material in the process of laying the same, in such manner that the work may be done quickly, and the coating substances applied to the covering materials evenly and positively and at the particular part of the covering materials desired.

One object of the invention is to provide a carriage running easily upon wheels, and adapted to carry a large receiving tank for the waterproofing compound, and also the various devices necessary to apply the coating material to the covering material as the carriage is propelled.

A further object of the invention is to provide the carriage with power wheels adapted to drive suitable mechanism by which a spreader withdraws a suitable quantity of the coating material from the tank and spreads the same upon the covering material.

A further object of the invention is to provide a suitable support on the carriage for a large roll of felt, paper, or other covering material of sufficient length to lay a continuous strip of covering material from one end of the structure to the other, in order that there may be no points at which it is necessary to lap the ends of the covering material.

A further object of the invention is to provide a coating device with suitable guides to feed the covering material against the same in such manner that the coating material may be spread thereon positively and evenly and along the particular portion of the surface thereof where it is to be spread, and of the width required, and to make such coating device adjustable, so that the same machine may be used for coating the entire width of the material, and also,

when desired, only one-half, one-third, or other fractional part thereof.

A further object of the invention is to dispose such coating device in its relation to the covering material feed roller and the surface to be covered, so that the covering material, as soon as coated, can be fed from the coating device directly down upon such surface.

Another object of the invention is to provide a forwarder which acts directly upon the coated covering material pushing it forward to its place, and as it reaches its desired position, pressing upon the same and causing it to adhere to the surface to be covered, and to construct such forwarder in connection with the entire machine so that it shall move therewith and perform its work as the machine is propelled; and also so that it can be withdrawn from its position in the machine, and the machine used independently thereof.

A further object of the invention is to provide a suitable severing or cutting device, by means of which the covering material may be readily severed when it has reached the point at which a layer thereof is to end.

A still further object of the invention is to provide means for keeping the machine substantially level, if desired when it is to be used upon a roof or other sloping surfaces.

Further objects and advantages will appear in the description following, it being understood that changes may be made in the forms and disposition of the different parts, and in other minor details of construction, without departing from the scope of the claims based upon this specification.

In the accompanying drawings forming a part of this specification Figure 1 is a top plan of the waterproofing coating and covering machine constructed according to my invention, with some of the parts cut away, to show the other parts more clearly. Fig. 2 is a perspective view from the rear of the machine, showing the spindle of the covering material in place, but the covering material removed therefrom. Fig. 3 is a longitudinal section of the machine along the line *a a* of Fig. 1, looking in the direction of the arrows. Figs. 4 to 13 are views of details.

Similar characters of reference indicate like parts in all the figures of the drawings.

As the work of waterproofing roofs, floors and cellars is generally done at the present time, the covering material is rolled or laid out by hand and cut into comparatively short lengths for convenience of handling and to permit spreading of hot coating material with a mop and placing of the covering material in same before it can cool. The waterproofing compound, usually hot melted pitch or asphalt in a liquid state, is then applied to the surface of the roof or of the covering material by hand, by means of large mops. In covering such surfaces it is frequently the case that only a part of the surface, say one-third or one-half, of the side of each layer of the covering material is designed to be coated with the waterproofing compound, as the layers are intended to overlap. The workman takes the mop, dips it into the bucket or vessel containing the liquid pitch or asphalt, withdraws it therefrom, and then spreads it as evenly as he can upon the surface to be coated. The result is that the compound adhering to the mop comes from the bucket upon a particular spot, generally dripping and making a splash at that point, and causing a waste of a considerable portion of the waterproofing compound, and then as the mop is passed over the covering material the quantity applied is irregularly applied, at some points being spread too thin in quantity, at some points not covering the width of the material intended to be covered, and at some points covering a wider part of the material than is intended or necessary, and thereby causing additional waste of material, lack of uniformity and various imperfections. In addition to the imperfections specified, others frequently appear as a result of the present methods. The waterproof compounds are applied to the part of the roof, floor, or covering material to be laid, and the next strip is then to be laid thereon. As above stated the strips of the covering material must be comparatively short, in order that they may be handled and laid evenly upon the part beneath them and caused to adhere thereto before the coating compound has time to cool and become hard, and this is not only very difficult to do, but in windy weather it is almost impossible, because of adhesion, to draw out and lay down the covering evenly upon a roof or other exposed place, so that there are always more or less uneven places, and places where the material has buckled or shifted before it has been pressed down and been cemented firmly into position, and places in which the covering material has been torn in the effort to straighten and stretch it when it has adhered in an improper position. Besides this, as the sheets or strips of the covering material have to be comparatively short in order to be handled

and coated to the best advantage, they have to be lapped at a number of places when applied on large surfaces, this lapping creating further uneven places, and also wasting materials. In order to cover or overcome the defects which generally arise from this uneven workmanship, it is customary to apply four, five, and sometimes six, thicknesses of the covering material, and cement them together with the waterproofing material in the manner described, in order that the places which may have been insufficiently protected by the first or subsequent layers of the covering material may be reinforced, and thus a much larger quantity of the covering and coating substances is consumed, than would be required if the work of coating and laying could be done in a more perfect manner.

Besides the loss of material mentioned, there is a very substantial loss in time and labor. Generally three men at least are required to perform the operation of sticking the felt or other covering material in place. One man stands at each end of the short section of paper, or other covering material, which has been previously rolled out and cut, and lifts the paper, turning it back for a portion of its width. The third man applies the waterproofing composition to the surface to be coated with a mop, as previously stated, and as nearly to the requisite width and of the requisite quantity, and as evenly as his skill or care enables him to do. Immediately after the passage of the mop, and before the waterproofing composition can cool, the other two men fold the covering material back into its place, and attempt to rub out any wrinkles or buckled places. On board surfaces it is necessary to avoid applying any portion of the waterproofing compound directly to the surface of the boards, for the reason that the heat of the summer sun is sufficient to soften it slightly and cause it to run through the cracks in the boards. Consequently the part of the covering material which touches the boards must be free from pitch or other waterproofing compound. For this reason the first layer of covering material is coated on part of its upper side only, and the subsequent layers are coated in such manner that no part of them which touches the boards carries any of the coating compound. This is done by coating only so much of each strip of covering material as laps over the underlying strip, and in doing so a spreader of proper width and a friction roller of the requisite length are used. On concrete surfaces on the other hand, it is desirable to interpose a layer of the coating compound between the surface of the concrete and the under part of the covering material. As this is done at the present time a workman is steadily employed in spreading the water-

proofing compound upon the surface of the concrete, in advance of the men laying the felt. In doing this kind of work by my machine a spreader of the full width of the covering material is employed, together with a friction roller of equal length, and thereby the desired result is obtained, and the labor of mopping the surface is saved.

The machine of my invention, and the improvement in the art invented by me, are intended to provide means for overcoming the loss of time, labor, and materials due to the present methods of waterproofing roofs and floors, of cellars, of buildings and other structures, with layers of felt, paper, cloth, and other covering material, combined with interposed layers of waterproofing compounds, such as pitch, asphalt or similar materials applied either hot or cold, and thereby forming a continuous body of waterproofing material covering the surface to be protected and alike in all its parts.

My novel machine includes a suitable tank, 1, for containing the coating or waterproofing compound, which may be provided with a cover, 2, containing an opening, 3, which may have a hinged lid, 4, and through this opening the liquid waterproofing compound is to be poured into the tank. The opening is further provided with a screen, 5, in order to exclude cinders, bits of wood, and other refuse which at times find their way into the pitch or asphalt, especially when the barrels containing it are broken open, and when the compound is heated and melted in the open air.

The tank, 1, is supported in any kind of suitable frame, as for instance, the frame shown in the drawings. This consists of a pair of horizontally disposed bases, 6, 6, on the sides of the machine, to which uprights, 7, 8, are secured in triangular form, meeting at their upper ends, against a forked upright, 14. These uprights, 7, 8, are braced from side to side of the frame, by suitable cross bars, 9, 10, and may be formed of suitable angle irons. At each lower corner of the frame, furthermore, a wheel, 13, 13, 13, is rotatably disposed, and by means of these wheels, the frame can be wheeled from place to place, before the drive wheels are attached to it.

The forked uprights, 14, 14, and the uprights, 7, 8, are firmly secured and braced as by suitable bolts, 15, clearly shown in Fig. 4, in which one side of the frame is shown in detail, separated from the other side.

Near the lower part of the front of the frame, a rod, 16, is attached, and to this is adjusted a sliding part, 17, carrying a knife, 18, and provided with a handle, 19, as shown in detail in Figs. 4 and 5 and 6 and a rest or catch, 20, for the knife handle may be provided, as shown in Fig. 3.

For propelling and operating the machine,

when it is to be used, drive or power wheels, 21, 21, are provided, which are secured to a dropped or U shaped axle, the lower part, 23, of which, passes from side to side of the frame, and the axle spindles, 24, 24, project beyond the frame. The axle is to be slipped into place in the frame, in such position that the forked ends of the upright, 14, in each side of the frame, rest upon and hug the perpendicular portions, 22, 22, of the axle, and thereby the frame, together with all the parts thereof, are supported upon this axle, and are held firmly in place by the forked pieces, 14, 14.

The axle spindles, 24, 24, of the axles may be provided with adjustable sleeve detents, 25, 25, which may be either keyed in place, or fastened with suitable set screws.

The adjustment of the parts is such that when the axle of the drive wheels, 21, 21, is in place in the frame, and the drive wheels are attached thereto, the entire frame, including the small wheels, 13, 13, will be raised above the surface on which the machine is to be used, and the wheels, 13, 13, at either end of the frame, will act merely as supports to steady the machine, when not being propelled, or as it is propelled.

When the frame is supported by the drive wheels, 21, 21, the tank, 1, may be slipped into place. The tank may be provided with lugs, 28, 28, which take into slots, 27, 27, on the inner side of the perpendicular parts, 22, 22, of the axle, as is clearly shown in Figs. 7 and 8, and the front of the tank, 1, rests against the crosspiece, 9, and the rear against the crosspiece, 10, of the frame, as is clearly shown in Fig. 3, thus holding it firmly in place. After the tank, 1, has been placed in position in the frame, a rod, 29, may be inserted above the tank, passing from side to side of the frame, and secured in place by suitable nuts, 30, 30, or similar detents, as shown in Fig. 5, to further brace the parts, if desired. By this arrangement a strong and rigidly braced knockdown support is provided for all the parts, so that the machine can readily be taken apart and quickly set up in place when it is required for use.

For operating the various operating devices of the machine, each of the power wheels, 21, 21, has rigidly attached to it a sprocket wheel, 31, carrying a sprocket chain, 32, which meshes into a small sprocket wheel, 33, to which is keyed or otherwise rigidly secured a gear wheel, 34, so that when the machine is propelled, the rotation of the power wheels, or of one of them, will also rotate the gears, 34.

To the inner side of the tank, 1, inclined grooves, 35, 35, terminating at their lower parts in suitable journal bearings, are attached, adapted to take in the journal ends, 36, of a stretching roller, 37. These journal ends are provided with circumferential

grooves, 38, in which a stiff wire, 39, is inserted, which is long enough to project above the tank when the roller, 37, is in its bearings, and which may terminate in the handle, 40, by means of which, there being one at each end of such roller, 37, it may be lifted entirely out of the tank, or one end thereof may be raised as desired.

To each side of the rear upper part of the tank, 1, brackets, 41, 41, are firmly attached, which form supports for the sprocket wheels, 33, 33, and the gear wheels, 34, 34, journaled therein. These brackets 41, 41, terminate at their upper ends in forks, 42, 42, the lower parts of which constitute journal bearings for a shaft, 43, which has rounded portions, to rotate in the forks, 42, 42, but the intermediate portion thereof is square, and its extreme ends, 44, 44, are also square, and adapted to be taken into the detachable handle, 45, clearly shown in Figs. 1 and 2. Near each end of the shaft, 43, small gears, 47, 47, and cams, 46, 46, are journaled thereto, which gears mesh into the gears, 33, 33, when the cams, 46, 46, are in one position, as shown in Fig. 11, but which are raised out of mesh when the cams are turned in the reverse position, as shown in Fig. 12.

The shaft, 43, is long enough to take into a friction or gripping roller or drum of the width of the felt or covering material to be coated, which is usually 32 inches wide; but a gripping roller of any length shorter than that may be mounted thereon, according to the width of the layer of waterproofing compound which it is desired to apply to the covering material. The friction roller, 48, shown in the drawing is one intended to be used when one-half only of the strip of felt is designed to be covered with the compound, and is secured in place on the shaft, 43, by any suitable detent, as by a sleeve, 49, with a spring pin, 50, passing through it into a notch or opening in the shaft, 43, as clearly shown in Fig. 10. To the ends of the friction or gripping roller, 48, or in any suitable position guides may be disposed to keep the spreader in place. This may be done by suitable heads, 51, 51, attached to the gripping roller, to guide the spreader, and said roller may be provided with pins or other gripping devices to act upon the spreader.

An endless coating device or spreader, 52, of any suitable material, as, for instance, a strip of Axminster carpet or similar material, adapted to convey a desired quantity of the coating compound intended to be used, from the tank, 1, to and around the friction or gripping drum, 48, and spread the same upon the felt or paper, 53, is provided. The gripping drum, 48, on its shaft is passed through the spreader, 52, and the ends of the shaft with the gears and cams, are inserted in the bearings in the forks, 42, 42. The stretching roller, 37, is

also pushed through the endless spreader, 52, and its ends inserted in the inclined grooves, 35, 35, and it is allowed to pass down the same, so that the spreader surrounds both rollers, as shown in Fig. 3. The adjustment of the parts is such that the stretching roller, 37, will keep the endless spreader substantially in the proper position for its work, whether it rests in the bearings or above them in the incline.

The upper parts of the upright forked pieces, 14, 14, of the frame are provided with journal bearings, 54, 54, adapted to take in a shaft, 55, shown in Fig. 2, which is inserted in the center of the roll of paper or felt, or other covering material, 53, designed to be coated, and the roll is lifted into place in such forked pieces, 14, 14 on the upper part of the frame, as shown in Fig. 3.

A forwarding device of suitable construction is to be connected with the machine, for the purpose of carrying the coated material forward as the machine is propelled, and pressing it into place. This may consist of a roller, 56, having a journal, 57, which takes into the arms, 58, 58, and is thereby attached to the handle, 59. This handle terminates in a crook, 60, which is adjusted to take over the handle rod, 12, of the machine, and to be there secured as by a pin, 61.

When the machine is to be used, the parts may be assembled at the proper place, where the laying is to commence, which is usually at a wall, gutter, or eaves, of a roof, in covering roofs, and invariably at the lowest point of any inclined surface which is to be covered. The machine may be there set up, the tank, 1, supplied with the coating compound to be used and the gripping drum, 48, stretching roller, 37, and endless spreader, 52, placed in position, and the covering material raised to its position in the uprights, 14, 14. The friction drum gears, 47, 47, are raised out of mesh with the gears, 34, 34, by means of the cams, 46, 46 as before described, the handle, 45, is slipped over the end, 44, of the drum shaft, 43, which is then rotated by said handle, until a sufficient quantity of the coating compound adheres to the spreader, 52. The end of the felt or other covering material is then drawn down by hand from the roll, and passed over the spreader and drum as the same is being rotated, until a sufficient length thereof has been coated. The end of the strip of covering material is then carried to the point at which the layer is to commence, and is there pressed down by hand, or by running the roller of the forwarding device over it, as desired. The forwarding device is then pushed forward, moving on the upper side of the covering material, until that is carried under the machine far enough to permit the handle, 59, to be secured in place,

and the parts are in the position shown in Fig. 3. When this position has been reached, the cams, 46, 46, are turned to the position shown in Fig. 11, allowing the gears, 47, 47, to mesh with the gears, 34, 34, and then as the machine is propelled the forwarding roller, 56, draws the covering material, 53, over the spreader, 52, on the friction drum, 48, where the coating compound is spread upon it, down to the surface to be covered, the gripping roller, 48, being at the same time rotated by means of the sprocket wheel, 31, acting upon the gear wheel, 34, and the gears, 47, thereby rotating the drum, carrying the spreader around the stretcher roller, 37, and conveying the coating compound from the tank to the felt or covering material, as it is drawn down upon the surface to be covered by the forwarding roller, 56, and in such a direction that any dripping of the water-proofing compound from the spreader as it passes over the gripping roller will fall upon the surface of the covering material which has already been coated.

If desired the forwarding roller, 56, may also be held in position on each side of the frame as by means of lever catches, 62, on each base piece, 6. These may be pivoted as shown at 63, and have their lower edges inclined, so that when the roller, 56, is pushed into place under the machine, the catches, 62, will ride up on the journal, 57, until the journal has passed beyond them and will then fall down back of the journal. By this arrangement the roller will be kept steadily in position drawing down the coated covering material, while the machine is propelled, as the journal of the roller is held in place in the angle or groove of the base pieces, 6, 6, and the catches 62, 62. For disengaging the roller, the upper ends, 64, 64, of the catches are pressed down by dropping the handle, 59, to a point where small lugs, 66, on the handle arms, 58, 58, press down the short ends, 64, 64, of the catches, 62, which raises the engaging ends, and releases the roller, 56, so that it may be withdrawn from the machine, as before stated. When the machine has reached the end of the roof or floor which is to be covered, the cams are reversed, the handle, 59, of the forwarding roller, 56, is released, and by means of it, the roller, 56, is pushed forward, carrying with it the strip of paper or felt, until the journal of the roller, 56, impinges against the journals, 66, 66, of the wheels, 13, 13, at the forward end of the machine. When the roller reaches that point, the strip of paper or felt will be at the position where the knife, 18, will cut it, when drawn across the frame, by means of the handle, 19, and the adjustment of the parts is such that the raised portion of the felt will be long enough, so that the severed end will cover the space to the edge designed to be covered.

When one layer of felt has been thus finished, the forwarding roller is withdrawn from the machine, the pintles of the wheels, 13, 13, at the rear ends of the horizontal base pieces, 6, 6, being flush, so as to permit the withdrawal and insertion of the rolling journals at that end, and the machine is turned around by means of the handle, 012, the friction drum, 48, is shifted to the other end of the shaft, 43, and the stretching roller, 37, is also raised enough to shift the endless spreader, 52, to the other side of the tank, 1. That having been done, the loose end of the felt is coated as before stated, and is carried to the place where it is to be laid down, is pressed into place there, the forwarding roller, 56, is then again secured in place under the machine, and the next layer of felt is coated and pressed down in the same manner as the first.

Ordinary tarred or asphalt felt is generally "tacky," that is, apt to adhere slightly to the roll, so that it is not likely to overrun when the machine is being worked. But some of the materials employed, and sometimes the felt, also, may require to be braked, and for this purpose a swinging brake, 65, may be employed, and mounted on the rod, 29. This may have a suitable shoe, 66, at one end of the arm, and an adjustable sliding weight, 67, mounted on the other end, as shown in Fig. 2. The weight may be so adjusted as to keep the brake substantially balanced, if the felt is "tacky"; or, by drawing it to the outer end of the arm, so as to bear hard enough on the roll to prevent the material overrunning. With some of the coating compounds a doctor or scraper may also be provided, which will accomplish this purpose, and placed in any suitable position where it can act upon the spreader, to scrape off any excess of material. For example, for this purpose one may be placed across the tank, 1. This may consist of a rod, 68, with a ratchet, 69, and pawl, 70, adjustment, to which a scraping blade, 71, may be secured in any convenient manner, as is shown in Fig. 8. Furthermore, brakes for the drive wheels, 21, 21, may also be provided, if desired. Any suitable braking device may be attached to the frame in such manner as to check the movement of the machine. A pair of suitable brakes is shown. These may consist of suitable arms, 72, 72, pivotally attached to the triangular uprights, 8, 8, and provided with screw wheels, 73, 73, and shoes, 74, 74, as clearly shown in Figs. 3 and 4.

A removable supporting device, 048, may be provided to be attached to the tank, 1, by means of which that portion of the sheet of covering material which is not in contact with the spreader as it passes over the friction drum, 48, may be supported and preserved on an even plane. This may be

attached to the tank, 1, in any suitable manner, as by spring clips, taking in the edge of the tank, as shown in Fig. 8.

At times, and on sloping roofs, it may be desirable to keep the machine level. For that purpose it is convenient to provide extended axles, 024, 024, and auxiliary wheels, such as the wheel 75, shown in Fig. 13. Such wheels can be made light, and in several sizes, so that in preparing for any particular work, a wheel of the size required may be sent with the other parts of the machine to the place where it is to be used. These auxiliary wheels are to be attached to the axle spindle, 24, of the axle which is on the lower side of the roof, and may be quickly transposed from one side of the machine to the other, as the machine is reversed for its work. The sprocket chain may be removed from the drive wheel which is at rest when an auxiliary wheel is employed, or the end of the gripping drum on the side of the dead wheel may be disengaged by the cam, 46, on that side, if desired.

From the foregoing description and specification it will be understood that by the use of my machine and the exercise of my improvement in the art of waterproofing surfaces; many advantages result, and a great improvement in the art of forming waterproof surfaces is attained. The first and most important advantage is the uniformity of the coating of waterproofing compound on the covering material, so that the whole or one-half, or one-third or other fractional part of the covering is evenly and positively coated at the part and for the whole of the part designated. The various layers as the strips of covering material are put down, are laid evenly, stretched into place continuously as the work progresses, cemented together with a coating of waterproofing compound of substantially the same breadth and thickness between each layer, so that the entire surface to be waterproofed will receive an equal quantity of waterproofing compound, and no part be inferior to, or weaker than, any other part. There is no waste of materials by having to lap the ends of short layers, no ridges or uneven parts resulting from laps, no waste of coating composition by reason of its uneven distribution with mops by hand, and no imperfections at various points by reason of the shifting, buckling or tearing of the layers of covering material. Owing to the uniformity of distribution of the coating material and to the absence of lateral joints or laps, there are no weak spots or parts to be reinforced when the surface is covered according to my improvement in the art as herein set out, and consequently a lesser number of layers of material will produce the proper protecting result; that is to say, where a surface

was so exposed as to require for its proper protection, say six layers of covering material when laid by the old method, five layers laid according to my improvement in the art will now be sufficient; where five layers were required when put down by the old method, only four layers will be necessary when my improvement is followed, out, etc., and thus there will be a great saving in the cost of material and in time of doing the work. In addition to the saving in time and materials, there results the additional saving in that by my improvement, the work can be done so rapidly, and the coating material can be used up so rapidly, that instead of having the coating compound brought to the place where it is intended to be used, in barrels, there broken open, and the contents heated over a fire there, it will frequently happen in instances of coating large surfaces, that the hot coating compound can be delivered direct from the still in tank trucks, hot and ready for use, as it remains in heated condition for a long time when in bulk. There is a great saving in cost of labor, by reason of the fact that when the covering material is evenly and continuously coated and in that condition is fed to the surface and laid down in just the position desired, and continuously from the extreme of one end of the roof or other surface to the extreme of the other end thereof, as shown and described in my improvement, two men can do the same amount of covering perfectly in a given time, which by the old method could not be done even imperfectly by less than six men.

The great advantages in my invention will be especially noticeable when it is considered that in modern buildings, such as factories, piers, railroad buildings, subways, and other structures, there are surfaces hundreds of feet wide and in many instances hundreds of feet long, and in the cases of some subways, thousands of feet long, and that in many large buildings, not only the roof but every floor of the building and also the cellar, is protected by waterproof covering, which can be put down continuously, evenly and cheaply according to my invention.

I do not herein make claims to the process or art of water proofing roofs and other surfaces, but such subject matter is included in the scope of my original application, and is to be the subject of a divisional application.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a guide member upon the support for applying the covering material as it is unrolled

to the surface over which the support is moved, and means for moving the guide member independently of the support to admit of the covering material being applied to edges and corners where the support can not be moved.

2. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a guide member at the bottom of the support for applying the covering material as it is unrolled to the surface over which the support is moved, and means for moving the guide independently of the support toward the forward end of the support to admit of the covering material being applied to edges which could not be otherwise reached.

3. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a guide member toward the bottom of the support for applying the covering material as it is unrolled to the surface over which the support is moved, a cutter upon the support, and means for moving the guide member independently of the support to bring the covering material into engagement with the cutter.

4. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a cutter at the forward end of the support, a guide member at the base of the support for applying the covering material as it is unrolled to the surface over which the support is moved, the said guide member being normally spaced from the cutter, and means for moving the guide member independently of the support for bringing the covering material into engagement with the cutter.

5. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a guide member at the base of the support for applying the covering material as it is unrolled to the surface over which the support is moved, means for normally locking the guide member so that it moves with the support, and means for moving the guide member independently of the support when it is unlocked therefrom.

6. In a machine for water proofing roofs and the like, the combination of a movably mounted support, means upon the support for engaging a roll of covering material, a roller at the base of the support for applying the covering material as it is unrolled to the surface over which the support is moved, a handle connected to the roller and serving as a means for moving the roller

independently of the support, and means engaging the handle for normally locking the roller with the support.

7. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, means upon the supporting frame for engaging a roll of covering material, a guide roller at the base of the supporting frame for applying the covering material as it is unrolled to the surface over which the supporting frame is moved, a handle connected to the roller and carrying the same, the said handle enabling the roller to be moved forwardly independently of the supporting frame to apply the covering material to the edge of a surface being covered, locking means for holding the handle with the supporting frame, and a detent engaging the roller to prevent backward movement thereof when it is in normal position.

8. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, means upon the supporting frame for engaging a roll of covering material, a cutter at the forward end of the supporting frame, a guide roller at the base of the supporting frame for applying the covering material as it is unrolled to a surface over which the supporting frame is moved, a handle connected to the said guide roller and carrying the same, the said handle serving as a means for moving the roller forward independent of the supporting frame to bring the covering material into engagement with the cutter and apply it to the edge of a surface being covered, and means for normally locking the roller with the supporting frame.

9. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, a suitable tank adapted to receive highly heated pitch and coating material mounted thereon, means upon the frame for supporting a roll of covering material, brake means engaging the roll of covering material to prevent a too free unrolling thereof, means at the base of the supporting frame for applying the covering material as it is unrolled to the surface over which the supporting frame is moved, and a spreader for applying highly heated coating material from the tank to the covering material as it is unrolled.

10. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, a tank mounted thereon and adapted to receive a coating material, a stretching roller arranged in the tank, a shaft upon the tank, a roller adjustably mounted upon the said shaft, means for holding the roller in an adjusted position, a spreading belt passing around the stretching roller and the adjustably mounted roller, means upon the supporting frame

for engaging a roll of covering material, and a guide member at the base of the frame for applying the covering material as it is unrolled to the surface over which the supporting frame is mounted, the said covering material engaging the spreading belt as it passes from the roll to the guide member.

11. In a machine for water proofing roofs and the like, the combination of a supporting frame, a tank mounted thereon and having grooves in the sides thereof, the said tank being designed to receive coating material, a stretching roller arranged within the tank and having the trunnions thereof loosely received within the grooves, a shaft upon the tank, a roller upon the shaft, a spreading belt passing around the said roller and the stretching roller, means upon the supporting frame for engaging a roll of covering material, and means at the base of the frame for applying the covering material to a surface, the said covering material being brought into contact with the spreading belt as it is unrolled.

12. In a machine for water proofing roofs and the like, the combination of a supporting frame, a tank mounted thereon and having grooves in the sides thereof, the said tank being designed to receive coating material, a stretching roller arranged within the tank and formed with trunnions loosely received within the grooves, wires loosely engaging the trunnions of the stretching roller and extending to the top of the tank, a shaft upon the exterior of the tank, a roller upon the shaft, a spreading belt passing around the said roller and the stretching roller, means upon the supporting frame for engaging a roll of covering material, and means at the base of the frame for applying the covering material as it is unrolled to a surface, the said covering material being brought into contact with the spreading belt as it is unrolled.

13. In a machine for water proofing roofs and the like, the combination of a frame, rollers upon the frame, a tank mounted upon the frame and adapted to receive coating material, a carriage engaging the supporting frame and lifting the same together with its rollers, means upon the frame for engaging a roll of covering material, means at the base of the frame for applying the covering material to a surface as it is unrolled, and means for spreading coating material from the tank upon the covering material as the latter is unrolled.

14. In a machine for water proofing roofs and the like, the combination of a supporting frame provided with axle engaging means, a tank upon the supporting frame and adapted to receive coating material, an axle detachably engaging the supporting frame, wheels upon the axle, means upon the

supporting frame for engaging a roll of covering material, a guide member at the base of the supporting frame for applying the covering material to a surface over which the frame is moved, a frame for applying coating material from the tank to the covering material, and means for moving the guide member independently of the frame for applying the covering material to the edge of a surface.

15. In a machine for water proofing roofs and the like, the combination of a supporting frame provided with rollers and with axle engaging notches, a tank mounted upon the frame and adapted to receive coating material, an axle loosely received within the axle engaging notches of the frame, supporting wheels applied to the axle and serving to elevate the frame and rollers, means upon the frame for engaging a roll of covering material, a guide member at the base of the frame for applying the covering material to the surface over which the supporting frame is moved, and a spreader for applying coating material from the tank to the covering material.

16. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, a tank mounted thereon and adapted to receive coating material, a cutter at the forward end of the supporting frame, means upon the supporting frame for engaging a roll of covering material, a guide roller at the base of the frame for applying the covering material as it is unrolled to the surface over which the frame is moved, a handle connected to the guide roll and carrying the same, the said handle serving as a means for moving the guide roller forwardly independently of the frame to bring the covering material into engagement with the cutter and apply the same to edges of surfaces, and a spreader for applying coating material from the tank to the covering material as the latter is unrolled.

17. In a machine for water proofing roofs and the like, the combination of a movably mounted supporting frame, a tank mounted upon the supporting frame and adapted to receive coating material, means upon the supporting frame for engaging a roll of covering material, a guide member at the base of the supporting frame for applying the covering material as it is unrolled to a surface over which the supporting frame is moved, a stretching roller arranged within the tank, brackets projecting from the tank, a shaft journaled between the brackets, a pinion upon the shaft, gearing for driving the pinion, means for throwing the pinion into and out of mesh with the gearing, a roller upon the shaft, and a spreading belt passing around the said roller and the stretching roller, the covering material being

brought into engagement with the spreading belt as it is unrolled.

18. A waterproofing machine, comprising a suitable tank movably supported, a power wheel adapted to move therewith, a spreader operatively disposed in said tank, a drum provided with suitable grippers adapted to operate such spreader, a connection between said power wheels and the gripping roller adapted to operate such roller when the power wheel is rotated, a spindle adapted to

receive a roll of covering material and pay the same out against the spreader, a bearing part adapted to hold the material against the spreader and force the same down upon the surface to be covered, and a cutter disposed in suitable position to sever the covering material.

RALPH R. MABIE.

Witnesses:

BENJAMIN A. MORTON,
JOHN R. GREENMAN.