

UNITED STATES PATENT OFFICE.

CONRAD A. GRIMM, OF NEW YORK, N. Y.

COMBINED CASH-REGISTER AND MONEY-CHANGER.

936,122.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed January 11, 1909. Serial No. 471,706.

To all whom it may concern:

Be it known that I, CONRAD A. GRIMM, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Combined Cash-Registers and Money-Changers, of which the following is a specification.

The purpose of this invention is to combine in a single structure means for receiving money and valuable papers and to provide separate receptacles for certain coins of like denominate value, like coins being kept separate, and to provide means for registering each coin, both when placed in the device and when removed therefrom, so as to keep an accurate tally, the parts being of such construction as to admit of the series of coin tubes being removed and placed aside for safe keeping, as over night, or for any other period when the device is practically left unattended, the coin tubes being readily replaced when resuming business, thereby obviating the loss of time and inconvenience incident to settling at the end of business and noting the amount on hand when resuming business in the morning, or at any other given time.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which,

Figure 1 is a perspective view of a combined cash register and money changer constructed in accordance with and embodying the invention. Fig. 2 is a front view, the front of the casing being omitted and the guides for the several coin slides being in section. Fig. 3 is a transverse section on the line *a-a* of Fig. 1. Fig. 4 is a detail perspective view of a coin tube, a cooperating coin slide and adjunctive parts; Fig. 5 is a sectional view of the lower portion of a coin tube, the coin slide, the supporting strip located beneath the coin tube and the chute, the dotted lines showing different positions of a coin during delivery of the same; Fig. 6 is a sectional view of the coin way showing the register cooperating therewith.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The cabinet or casing for inclosing the

operating parts may be of any construction, size and design, according to the required finish. A series of slides are arranged in the lower portion of the casing and are provided with push buttons 1 upon the exposed ends of the operating rods or stems, said push button being provided with numbers corresponding to the denominate values of the coins for which the slides are intended. The Nos. 1, 5, 10, 25, 50 and 100 appear on the push buttons 1 and designate pennies, nickels, dimes, quarters, half dollars and dollars, respectively. Each slide is of like formation and has a cut-away portion 23 and longitudinal slots 24. The cut-away portions 23 correspond to the size of the respective coins, so as to snugly receive the same. A spring 22 mounted upon the rear stem or rod at the side normally exerts a pressure to hold the slide at the limit of its forward stroke. The slides are supported by means of guide-strips 11, an inner longitudinal piece 21 and a front longitudinal strip of the casing. The guide-strips 11 are grooved in opposite sides to receive the coin slides, the latter being designated by the numeral 10. A supporting strip 12 is located below the series of guide-strips and coin slides and is provided at intervals with raised portions 13 to support the lowermost coins in the openings 23 of the coin slides.

A series of coin tubes 4 are located within the casing in vertical position and are supported upon the longitudinal strip 12 and retained in fixed position by means of supports 8 and 9 which are of like formation, and provided with openings at intervals of the length to receive the coin tubes. Extensions 15 depend from the lower ends of the coin tubes and are located at diametrical opposite points and rest upon the supporting strips 12 and pass through the longitudinal slots 24 of the coin slides. The extensions 15 are of a length to support the lower ends of the tubes in position so as to clear the coin slides and prevent frequent engagement of said slides with the lower ends of the tubes. The extensions 15 in connection with the slots 24 serve to limit the movements of the coin slides.

A chute 14 is located below the coin tubes and inclines upwardly both rearwardly and laterally, and is intended to direct the coins from the several tubes to a common point of discharge which is indicated at 2, the same

the combination of a casing, a series of coin tubes arranged within the casing, and each provided with oppositely disposed depending extensions, a supporting strip located
5 beneath the coin tubes and provided with a raised portion, coin slides mounted for longitudinal movement beneath the coin tubes and bearing against the upper surface of the supporting strip, said coin slides being each
10 provided with spaced longitudinal slots adapted to receive the depending extensions of the adjacent tubes, and having their op-

posite ends reduced to form terminal extensions, one of the extensions of each slide constituting a finger piece, and springs encircling the other extensions of the slides for moving the slides to extended position after each delivery of a coin. 15

In testimony whereof I affix my signature in presence of two witnesses.

CONRAD A. GRIMM. [L. s.]

Witnesses:

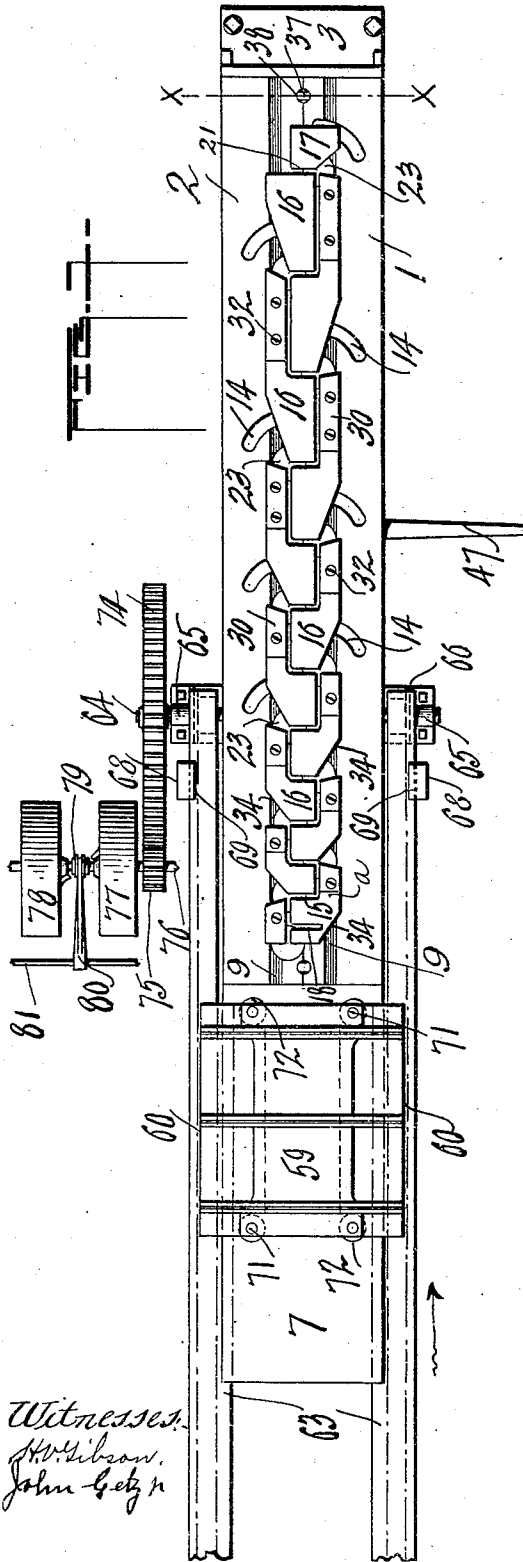
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WIRE STAY BENDING MACHINE.
APPLICATION FILED SEPT. 13, 1905.

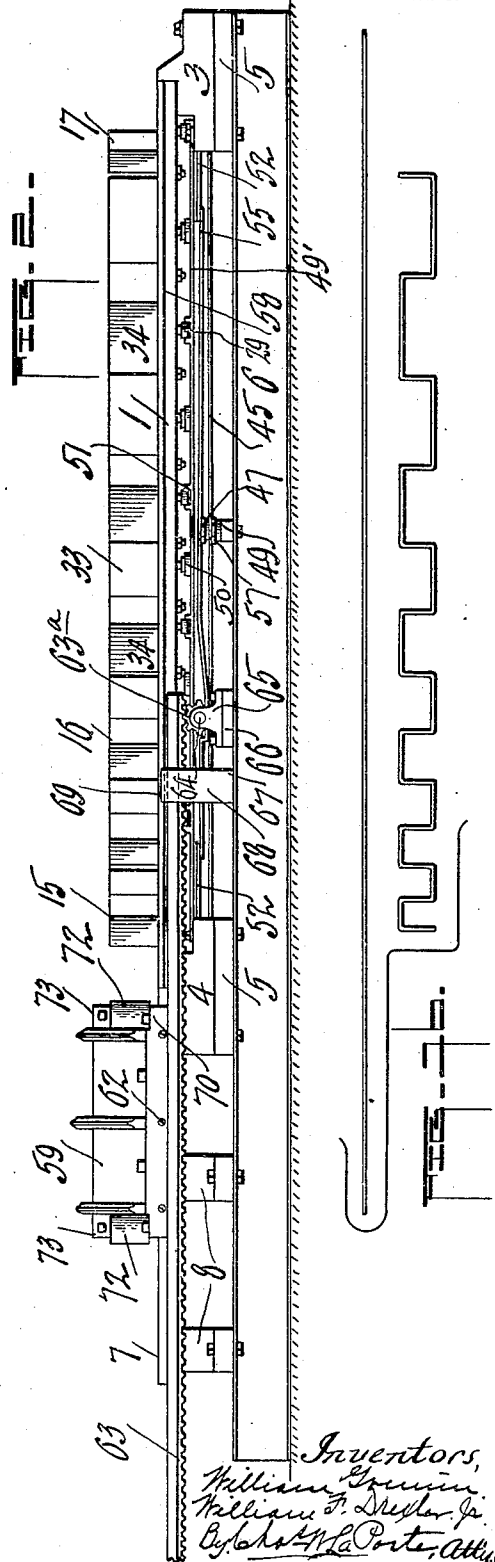
936,123.

Patented Oct. 5, 1909.

4 SHEETS—SHEET 1.



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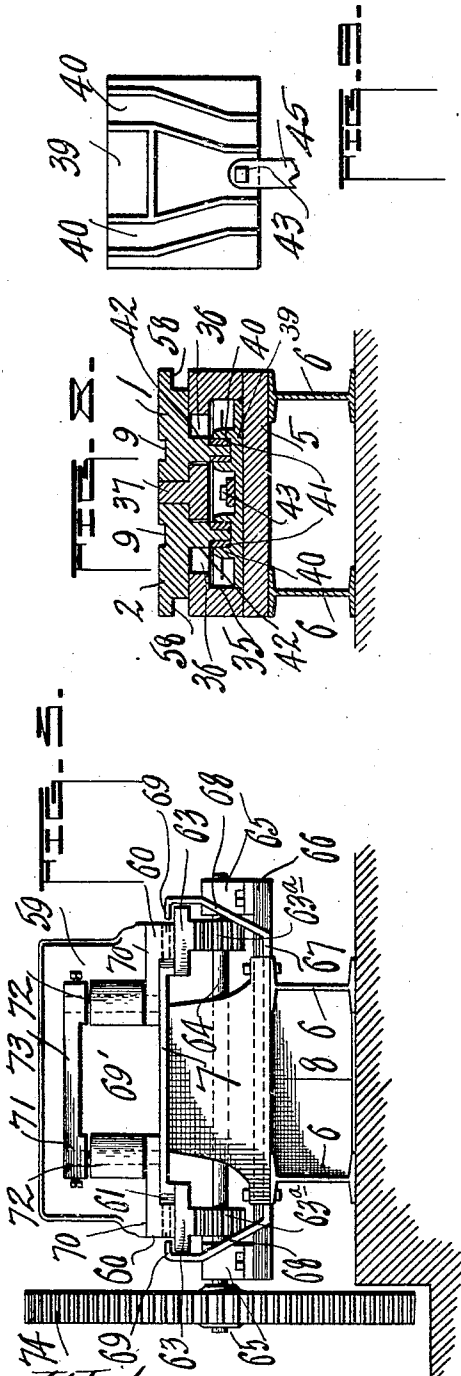
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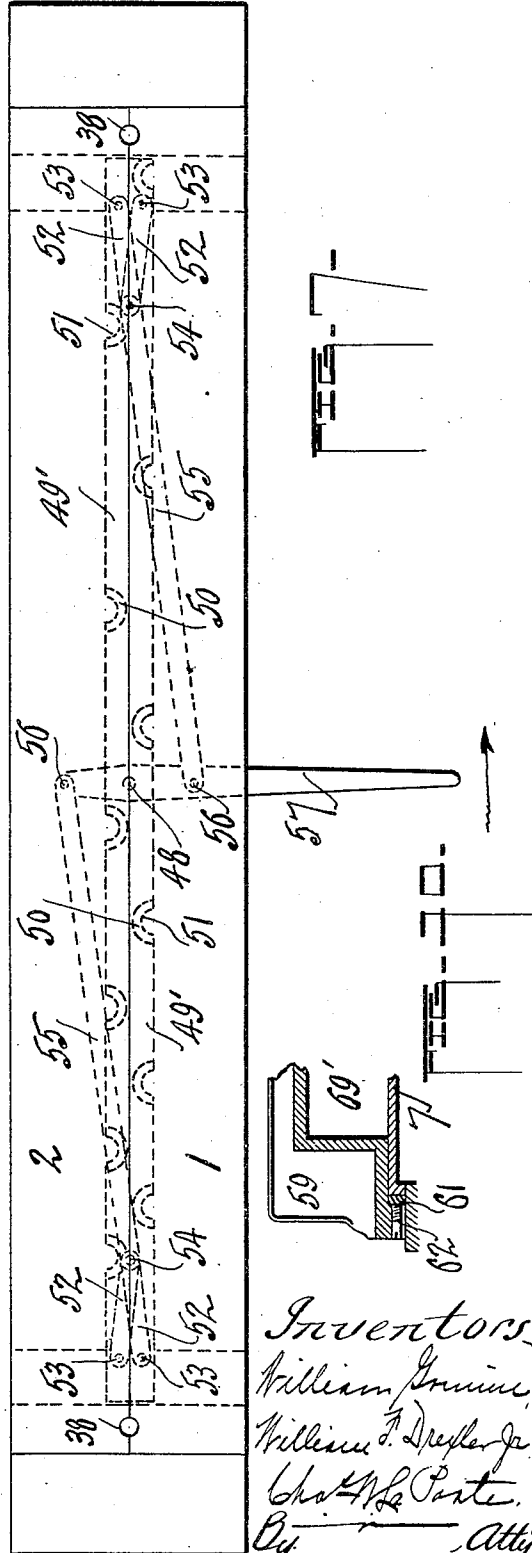
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4 SHEETS—SHEET 2.



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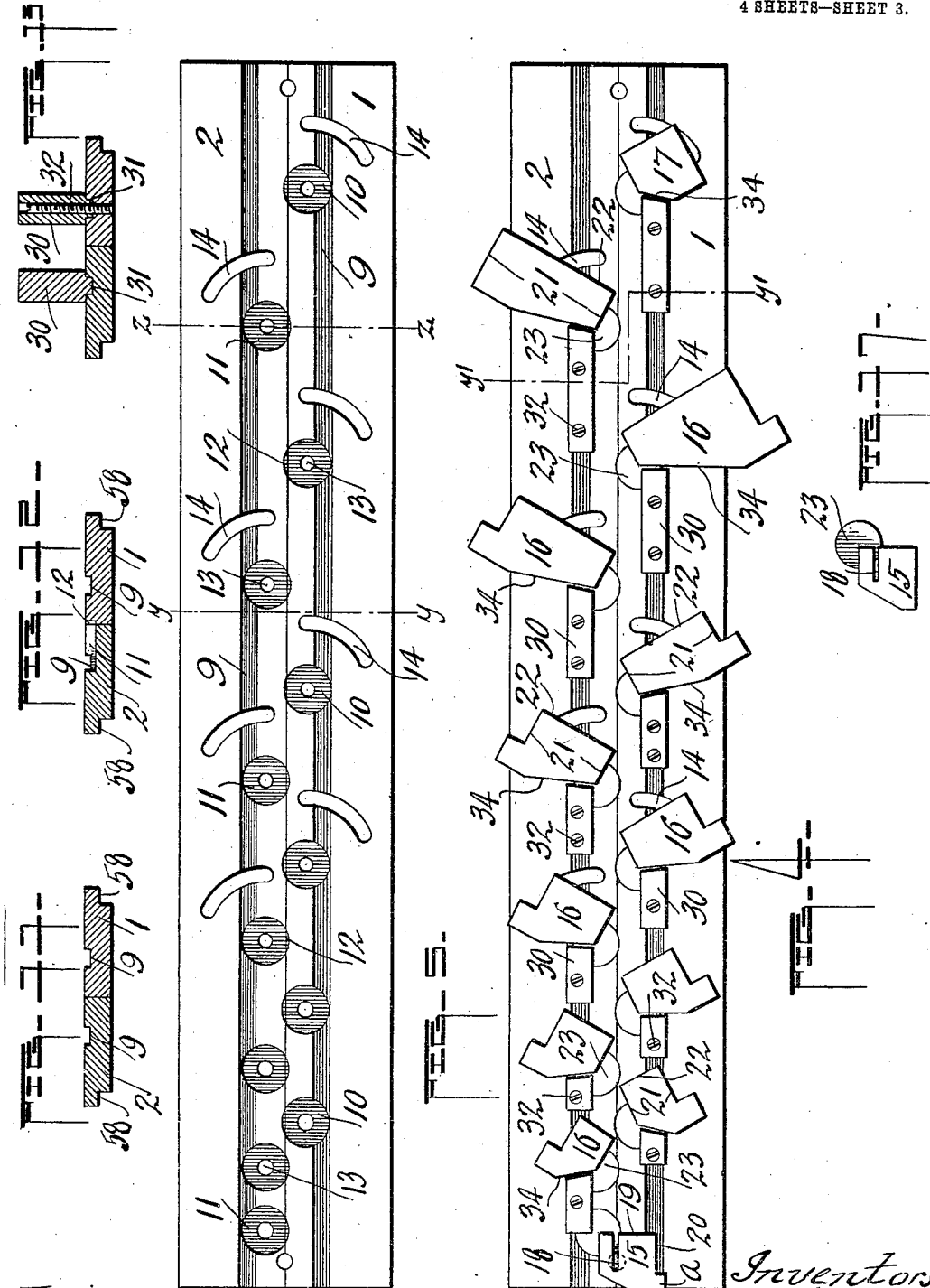
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4 SHEETS—SHEET 3.

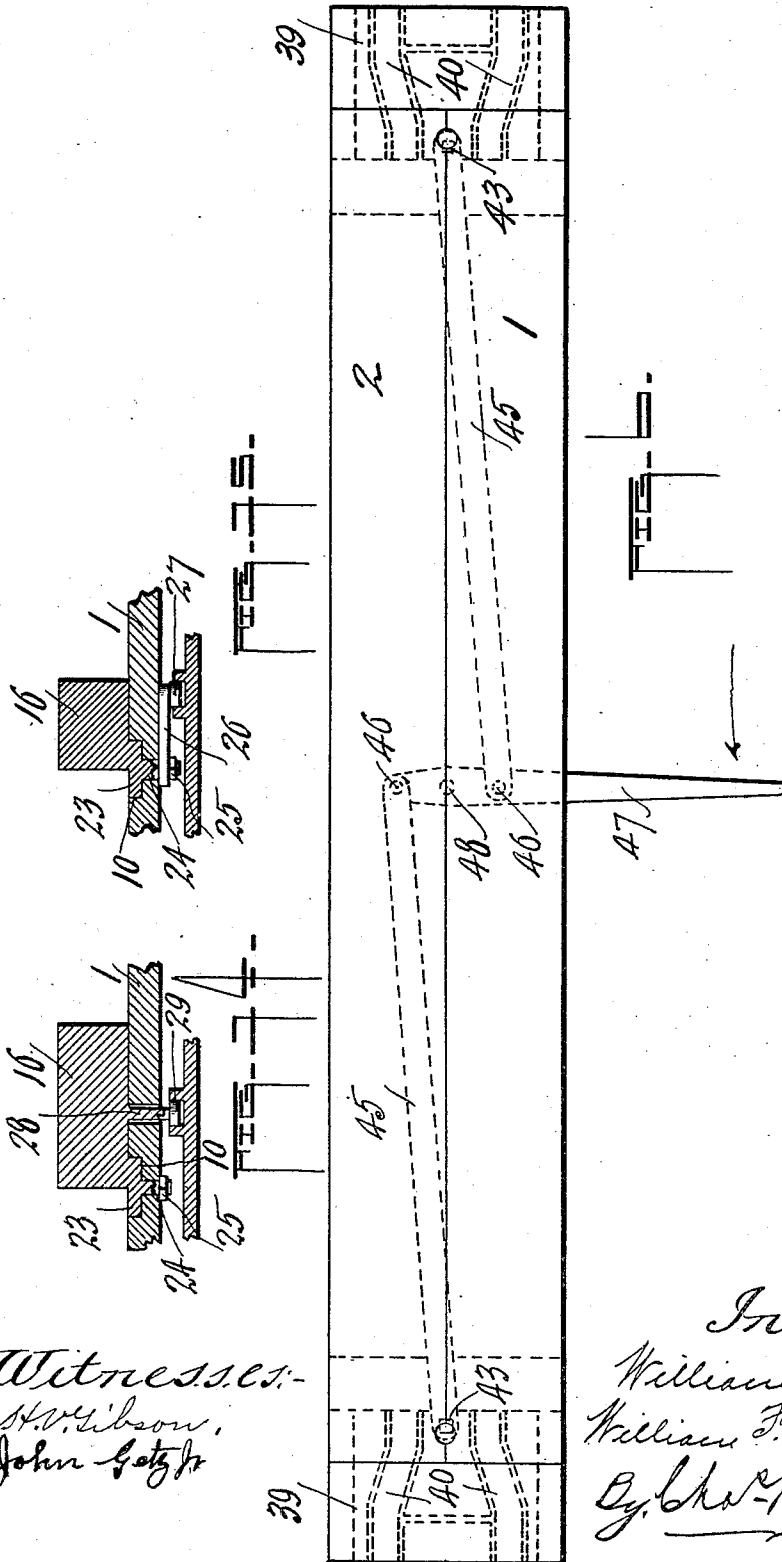


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APPLICATION FILED SEPT. 13, 1905.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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WIRE-STAY-BENDING MACHINE.

936,123.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed September 13, 1905. Serial No. 278,213.

To all whom it may concern:

Be it known that we, WILLIAM GRIMM and WILLIAM F. DREXLER, JR., citizens of the United States, residing at Morton, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Wire-Stay-Bending Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to a stay forming machine, the object of which is to shape a stay in the form in which the same will appear when woven with a series of longitudinal stringer wires or strands to form a wire fence fabric.

The invention has for its further object a machine provided with die forming mechanism adapted to act on one or more wire blanks to bend the same into a shape where the blank will have a series of alternately disposed short vertical sections and a series of intermediate and alternately disposed horizontal portions.

A further object of the invention is a machine provided with a series of pivotally supported forming members and a reciprocally carried carriage adapted to act on the members for closing the same upon wire blanks suitably disposed intermediate the matching faces of said members.

A further object of the invention is a machine provided with a series of interlocking die members pivotally supported, means for swinging the said members on their pivots to separate the same, and means for successively engaging the said members to interlock them upon one or more wires for the purpose of bending the same so that they will appear with alternately disposed horizontal and vertical portions.

A further object of the invention is a stay forming machine comprising a pair of bed plates adapted to have lateral movement imparted thereto for the purpose of separating the said plates, a series of forming members pivotally attached to each of said plates, means for oscillating the said members, and mechanism slidably supported by the said plates adapted to successively move the adjacent members of the adjacent bed plates toward each other.

The invention consists further of a bed frame, a series of oscillatory members pivotally supported on said bed frame, which are each provided with alternately disposed right angle forming edges, mechanism for separating the said members to adapt the placing of a series of substantially straight wire stay blanks, and mechanism for acting upon the said members to cause them to move toward each other, whereby their forming edges will engage the body of the wire stay blanks and form therein a series of right angle bends conforming substantially to the matching faces of the said members.

For a further and full description of the invention herein and the merits thereof, and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a machine embodying our improvements; Fig. 2 is a side elevation from one side thereof; Fig. 3 is a rear end view of the invention with parts of the driving mechanism omitted; Fig. 4 is a plan view of a portion of the bed plates showing the dies or forming members swung outwardly in which position it is adapted to place a series of wire stay blanks; Fig. 5 is a plan view of that portion of the bed plates shown in Fig. 4, with the die or forming members omitted; Fig. 6 is a plan view of a portion of the bed plates, in which the details of the bed plates and the dies or forming members are omitted, and showing in dotted lines the particular mechanism for separating the movable sections of the bed plates; Fig. 7 is a view of that portion of the bed plates shown in Fig. 6, with the details of the plates and the dies or forming members omitted and showing the particular mechanism in dotted lines for oscillating the said members on the bed plates into open position shown in Fig. 4. Fig. 8 is a transverse cross section of Fig. 1 taken on the line *x-x* and looking in the direction indicated by the arrow; Fig. 9 is a plan view of one of two movable plates provided with cam

grooves which are employed in connection with rollers attached to the bed plates for separating the plates through the mechanism shown in dotted lines in Fig. 6; Fig. 10 is a sectional detail of certain take up mechanism for providing against wear of a carriage reciprocally supported on the bed plates and movable above the die or forming members; Fig. 11 is a cross section on the line $y-y$ of Fig. 5; Fig. 12 is a cross section on the line $z-z$ of Fig. 5; Fig. 13 is a cross section on the line $y'-y'$ of Fig. 4; Fig. 14 is a longitudinal cross section through a portion of one of the bed plates showing the manner in which a series of the dies or forming members are supported and movable thereon; Fig. 15 is a longitudinal cross section through a portion of one of the bed plates showing the manner in which the remainder of the series of dies or forming members are movably supported thereon; Fig. 16 shows a wire stay blank previous to being formed with the alternate right angle portions, and after forming the same; and Fig. 17 is a detail in plan of a modified die or forming member which is employed as the outside forming member at the left-hand of the machine, looking at the same in Figs. 1, 2 and 4.

In the drawings, like numerals of reference indicate corresponding parts throughout the figures.

1 and 2 denote a pair of elongated bed plates which are of suitable thickness and width and have their opposite ends laterally movable toward and from each other on the blocks or castings 3 and 4, both of which are fixedly attached to supplemental bed plates 5, secured to a pair of longitudinal and parallel I-beams 6. In addition to the bed plates 1 and 2, there is a bed plate 7 which forms an extension of the plates 1 and 2 substantially as seen in the figures and is supported at one end on the block or casting 4 and the center and rear end thereof on the trusses 8 suitably attached to the I beams 6 shown in Figs. 2 and 3.

It might be inferred from the description with reference to the plates 1 and 2 that only their opposite ends are laterally movable toward and from each other, but it is to be understood that the plates may be separated their entire length for a suitable distance, for a purpose to be described. These plates are both provided with a longitudinal groove or channel way 9 in their upper faces which parallel each other and which extend from end to end of the said plates. The plates are further provided with a series of annular seats or depressions 10 and 11; the said depressions or seats coinciding with substantially arc shaped depressions or seats 12 in the matching edges of the plates 1 and 2, which are struck on an arc of a circle whose centers are the centers of the seats 10

and 11 and serve with the seats 10 and 11 to retain annular shaped lugs or plugs to be described. The said seats 10 and 11 together with the depressions 12 in the matching edges of the plates extend only part way down into the plates; and arranged in the center of said seats or depressions 10 and 11 and extending from the base thereof through the said plates, are seen the perforations 13. The seats 10 and 11 of the plates 1 and 2 are alternately disposed or in staggered arrangement, as will be seen in the figures, with the exception of the first two at the left of plate 2 which are in line and for a purpose to be described. In the plates 1 and 2, there is provided a series of arc shaped slots 14 extending through the thickness of the said plates and struck on an arc of a circle whose radius is the center of the seats or depressions 10 and 11. By reason of the depressions or seats 10 and 11, being disposed at graduated distances apart, there are fewer slots 14 in the plates than there are seats, the reason for which will appear in the further description of the machine.

15, 16 and 17 denote a series of irregularly shaped blocks, dies or forming members which are adapted to be pivotally supported on one or the other of the bed plates 1 and 2. It is intended that the blocks, dies or forming members 15 and 17 shall be disposed at the opposite ends of the series and that the blocks 16 will be intermediate the said blocks 15 and 17. The block 15 is provided with a groove or slot 18 and the forming edges 19 and 20; the intermediate blocks 16 are each provided with the matching forming edges 21 and the alternately disposed forming edges 22. Each of the said blocks, dies or forming members is provided with an annular lug or plug 23 adapted to be seated in one or the other of the series of depressions or seats 10 and 11 of the plates 1 and 2, and each lug 23 has a reduced stem portion 24 carried in or through the perforations 13, extending through the said plates and communicating with the seats 10 and 11 and retained in position therein by nuts 25 engaging screw threaded ends of the stems 24. Looking at the left hand end of the plate 2, the block, die or forming member 15 has its annular lug 23 seated in the first depression or seat 11 thereof and in line therewith and adjacent thereto, is shown a block 16 supported on the plate 2 substantially in the same manner as the block 15 and from there on to the opposite end of the said plates 1 and 2, the blocks 16 and the end block 17 are alternately disposed or in staggered arrangement coinciding with and conforming to the seats 10 and 11 of the plates 1 and 2. To the stems of the first six blocks, beginning at the left hand end of the plates 1 and 2, there is con-

nected a bar 26 which is of suitable length and swingable beneath the plates 1 and 2 and on the outer ends thereof have attached thereto the rollers 27. The remainder of the blocks, from the sixth block referred to, to and including the block 17, are each provided with a stem 28 projecting down through the slots 14 of the plates 1 and 2; and on their lower ends beneath the said plates there are attached thereto rollers 29 which are similar to those above referred to as 27 on the bars 26. It is immaterial whether the rollers are attached to bars 26 which may be connected to the stems 24 of all of the blocks, or whether they are arranged as here shown with a series of the rollers attached to bars 26 and the remainder to stems 28, which operate in the slots 14. Where the blocks are arranged at uniform distances apart, it will be found more convenient to attach the rollers to stems 28 of the said blocks, but where they are disposed at graduated distances, it is almost necessary that the arrangement be as here shown.

In Fig. 1, the blocks are shown in what will be termed a closed position and interlocked, causing the slot 18 of the block 15 and the forming edges 21 of the blocks 16 to lie parallel with each other and with the forming edges 21 of the blocks 16 adjacent to each other and to the forming edge 20 of the block 15 and the forming edge 21 of the block 17. It is intended with the peculiar and irregular shapes of the blocks 15, 16 and 17 to form a sinuous groove between the said blocks and stationary blocks 30 which are fixedly supported on the plates 1 and 2 in alternate or staggered arrangement and intermediate the forming members of the respective plates. The manner of securing the said blocks 30 to the plates 1 and 2 is in the provision of the reduced portions 31 thereof which are seated in the longitudinal grooves 9 of the plates 1 and 2 and securely retaining the said blocks of the said plates by means of the screws 32, see Fig. 13. In positioning the blocks 30 on the plates 1 and 2, it is preferable to dispose the same so that when the blocks 16 are in closed position, the blocks 30 will be opposite to the forming edges 22 of opposite blocks 16 and 15. The block 15 and the blocks 16, also the block 17, are provided with the tapered edges or sides 34, in addition to the forming edges as shown.

Referring again to the blocks or castings 3 and 4 which are secured to the supplemental bed plates 5, the same are channeled out as shown at 35 in Fig. 8, and their upper faces are provided with the transverse slots 36 and extending up from said blocks or castings, is a short stud or stem 37 which is adapted to match semi-circular cut-out portions 38 in the matching faces of the plates 1 and 2, and which serve as a guide for the said plates 1 and 2 in bringing the same to-

gether so that as they are separated from each other and returned, they will always follow the same lines. In the channel portions 35 of the blocks or castings 3, there are reciprocally carried plates or blocks 39, which are provided with a pair of corresponding cam grooves 40, see Figs. 6 and 9. In these cam grooves, operate rollers 41 which are attached to the lower end of stems 42, depending from the plates 1 and 2 which pass through and operate in the slots 36 in the castings 3, which when the stems 42 engage the end of said slots serve to limit the inward or outward movement of the plates 1 and 2. Pivotaly connected with each of the plates or blocks 39 at 43, is the outer end of a reach or bar 45 which bars extend to a point about centrally of the plates 1 and 2 and are pivotaly connected at 46 to a lever 47, and upon opposite sides of the fulcrum 48 of said lever 47, which is here indicated as a stem connected with a bar or brace 49 secured to the I-beams 6. It will be noticed that the cam grooves 40 in the plates 39, are closer to each other at their inner ends and that upon shifting the lever in the direction indicated by the arrow in Fig. 6, that the plate 39 will be drawn toward each other which will cause the rollers 41 of the stems 42 of the plates 1 and 2 to travel along the cam grooves 40 of the said plates 39, and as the outer ends of the grooves 40 of the said plates approach the rollers 41, they will cause the plates 1 and 2 to be separated from each other and carrying with them their respective forming blocks until the stems 42 reach the outer end walls of the slots 36, at which time the separation of the plates 1 and 2 will be stopped. The reverse of this movement, it will be understood, will cause the plates 1 and 2 to be moved toward each other.

There is provided a pair of bars 49' which lie parallel with each other and longitudinally beneath the plates 1 and 2, with the matching faces of the said bars 49' adapted to abut as seen in Fig. 7. These bars are each provided with a series of lugs 50, having the outer semi-circular faces 51, and in normal position when the said bars are adjacent or in juxtaposition to each other and the blocks 15, 16 and 17 are in closed position, the rollers 27 and 29 of the forming blocks referred to, will be seated in the semi-circular faces of the lugs 50 of said bars, and in fact, they are always retained in such positions unless the bars 1 and 2 are separated which would move the rollers with the blocks from the semi-circular faces in the lugs 50 of the bars 49'. These lugs 50 are alternately disposed or in staggered arrangement and appear substantially in the bars 49' as do the seats 10 and 11 in the plates 1 and 2. For the purpose of separating these bars 49' which will also oscillate the forming members 15, 16 and 17 on the plates 1

and 2 when the forming members are in closed position as seen in Fig. 1, we have provided at the opposite ends of the bars 49', a pair of short levers 52 which are pivoted at 53 to the bars 49' and to each other at 54; and pivotally connected to the junction 54 and the short levers 52 is a bar or reach 55 which extends inwardly to the center of the plates 1 and 2 substantially as do the reaches or bars 45, heretofore referred to, and their inner ends are pivotally connected at 56 to a lever 57 upon the opposite sides of the fulcrum of said lever, which is here indicated as 48 and is the same stud or pin which serves as the fulcrum for the lever 47 connected to the bar 45. Thus it will be seen that upon shifting the lever 57 in the direction indicated by the arrow in Fig. 7, the outer ends of the reaches or bars 55, will be forced outwardly causing the pivots 53 of the short levers 52 to be moved laterally in opposite directions carrying with them the bars 49 and with the bars 49', the rollers 27 and 29 of the forming blocks for the purpose of oscillating the said blocks on the plates 1 and 2 into the open position seen in Fig. 4. Throwing the lever 57 in a reverse direction, it will be understood, will reverse the position of the parts just described or return them to their normal or closed positions. The sides of the bed plates 1 and 2 are provided with the longitudinal grooves or cut-out portions 58, which extend the length of the said plates and serve a purpose to be described.

59 indicates a carriage which is reciprocally supported and movable on the bed plates 1, 2 and 7 and is provided with the overhanging portions 60 upon the opposite sides of the bed plates referred to; and between the portions 60 and the side edges of the bed plates 1, 2 and 7, we have inserted the filling or take up plates 61, which are adapted to be retained in position by the lag screws 62, substantially as seen in Figs. 2, 3 and 10. These filling plates 61, serve the purpose of taking up any wear between the edges of the bed plates referred to and the matching faces of the portions 60 of the carriage. Suitably attached to the under faces of the portion 60 of the carriage is shown a pair of rack bars 63 which extend a short distance out beyond the side faces of the carriage and also beneath the plate 7 and in the cut out portion of grooves 58 of the bed plates 1 and 2. These rack bars are of suitable length and have their teeth projecting downwardly, and said rack bars are in mesh with pinions 63^a carried on the opposite ends of a transverse shaft 64 which is journaled in the boxings 65 supported on the opposite ends of a brace or support 66, secured to the I-beams 6. At a suitable point extending transversely across the I-beams and secured

thereto is seen a bar 67, the opposite ends of which are directed upwardly as seen at 68, and then turned inwardly as at 69, to overlie the rack bars 63. These overlying portions of the bar are disposed in proximity to the pinions 63^a and in a measure serve to retain the free ends of the said rack bars in mesh with the pinions when the carriage has moved to the extreme left hand of the machine; the carriage to which the rack bars are attached holding that portion and the left-hand end of said rack bars in mesh with the pinions when the carriage has moved to the right hand end of the machine.

The carriage, or the main body thereof, is constructed substantially as seen in the Figs. 1, 2 and 3, being provided with the rectangular cut out portion 69' which is in length to correspond to the length of the carriage and in width to correspond substantially to the width across the dies or forming members when the same are in closed position as seen in Fig. 1. That is, when the dies or forming members are in closed position as seen in Fig. 1, the carriage may travel along the bed and over the said forming members without engaging the same as the side walls of the cut-out portion 69' will lie adjacent to the outside faces of the said forming members and also the blocks 30, and the upper wall of such cut-out portion 69' will lie adjacent to the upper faces of the said forming members and blocks just referred to.

The construction of the carriage is such that at its opposite ends and upon opposite sides of the cut out portion 69', the same is provided with the shelf portions 70, which extend longitudinally from the ends of the carriage and from the side walls of the cut-out portions 69' to the outer edges of the portion 60 and are integral with the said portions and the main portion of the carriage. Revolvably supported on spindles 71, which extend up from the shelf portions 70 of the carriage, are seen rollers 72, there being a pair at each end of the carriage with their outer faces disposed in the same longitudinal plane of the side walls of the cut out portions 69', for a purpose which will become apparent in the further description of the machine. The upper ends of the spindles 71 are carried in the transverse extension 73, which projects longitudinally from the ends of the carriage and overlies the rollers 72 as seen in Figs. 1, 2 and 3.

The mechanism for reciprocating the carriage in opposite directions on the bed plates 1, 2 and 7, consists of a large gear wheel 74, which is carried on one end of the transverse shaft 64, heretofore referred to as carrying the pinions 63^a, and in mesh with the gear 74, is seen a pinion 75, which is carried on a counter shaft 76, which said shaft carries a pair of oppositely driven clutch pulleys 77, and 78, which are preferably