R. S. PAYNE.

SHEET FEEDER.

APPLICATION FILED JUNE 20, 1911.

1,022,257.

Patented Apr. 2, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

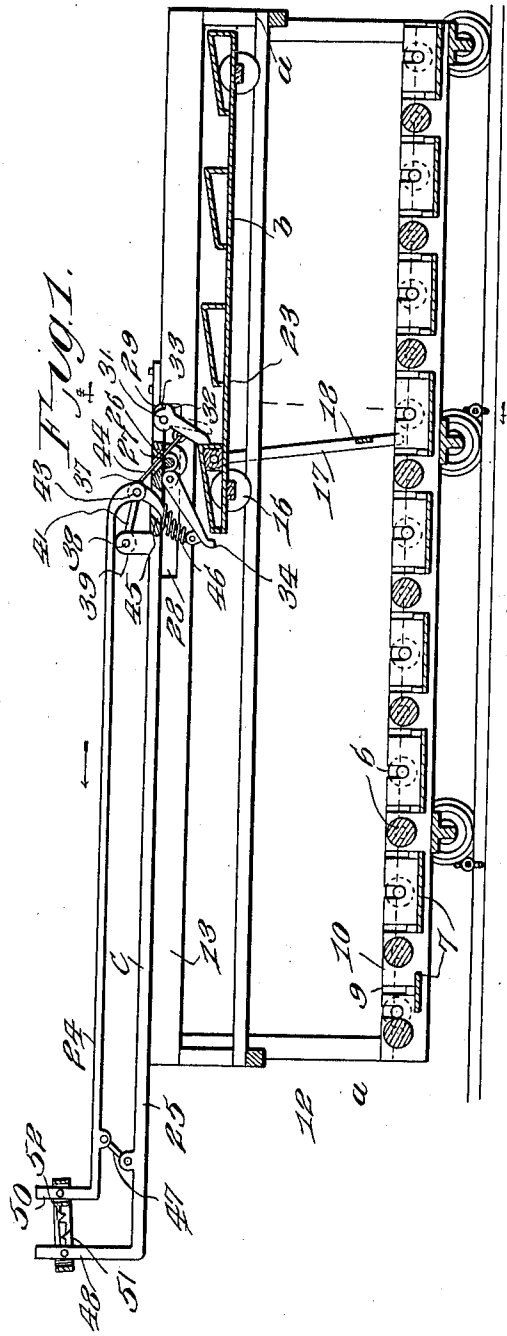
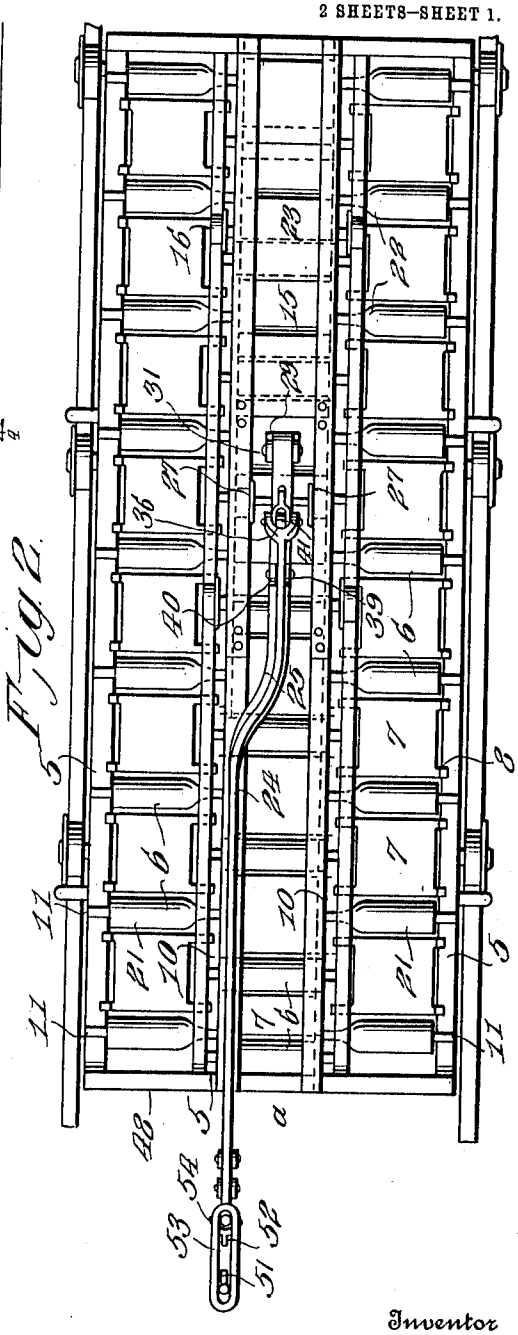


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

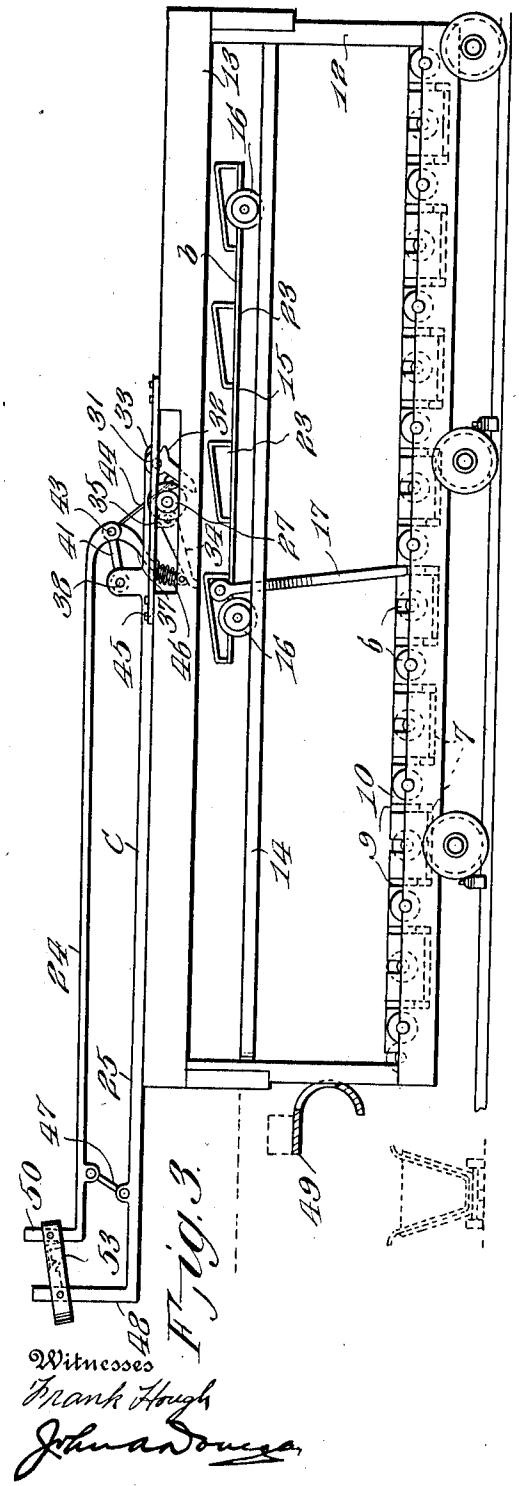

Fig. 3.

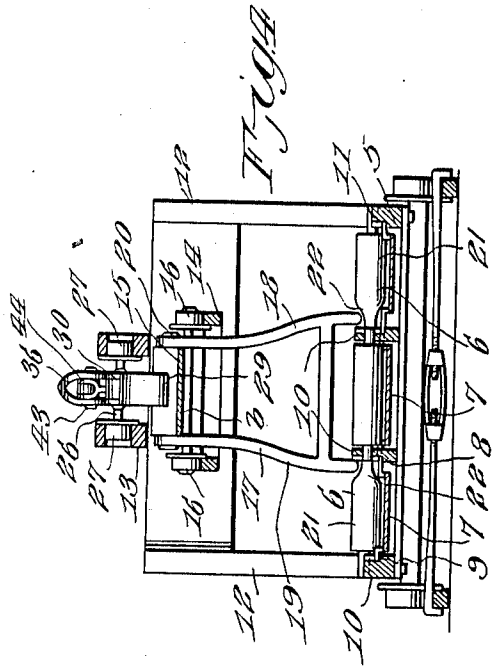

Fig. 4.

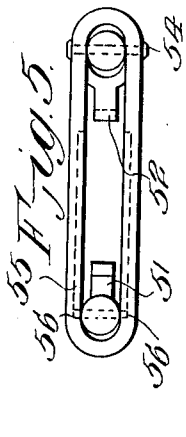

Fig. 5.

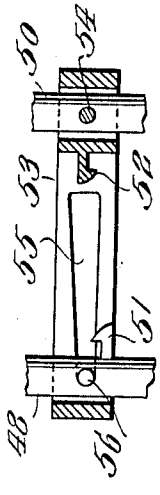

Fig. 6.

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SHEET-FEEDER.

1,022,257. Specification of Letters Patent. Patented Apr. 2, 1912.

Application filed June 20, 1911. Serial No. 634,260.

To all whom it may concern:

Be it known that I, ROBERT S. PAYNE, a citizen of the United States, residing at Monessen, in the county of Westmoreland and State of Pennsylvania, have invented new and useful Improvements in Sheet-Feeders, of which the following is a specification.

One object of the invention is to facilitate the operation of feeding, to a shear, a sheet of metal, such as tin to be subdivided into sheets or plates of a uniform and required length, and to this end the invention broadly consists in a bed of rolls for supporting the sheet and means for moving the sheet step by step over the bed of rolls and to the shear.

Other objects will appear and be better understood from the following description taken in connection with the accompanying drawings, in which,

Figure 1 is a vertical longitudinal section of the device. Fig. 2 is a plan view. Fig. 3 is a view similar to Fig. 2 but showing the parts in another position. Fig. 4 is a vertical cross sectional view of the device. Fig. 5 is a detail plan view of the locking mechanism. Fig. 6 is a detail longitudinal section of the same.

The lower frame 5 of the support *a* carries a bed of rolls 6 arranged in staggered relation and in longitudinal rows as shown in Fig. 2. The rolls 6 of each row are spaced apart and the space below adjacent rolls in each row is filled with a plate 7 having shouldered side walls 8 which are received by longitudinal rebates 9 in stringers 10 extending longitudinally of the lower frame, the said stringers 10 forming bearings for the trunnions 11 of the rolls 6.

The uprights 12 of the support *a* carry the upper frame 13 the ends of which support the track rails 14. The follower *b* comprises a body portion 15 having at its opposite ends flanged wheels 16 which move on the track rails 14. The follower has a depending portion 17 which may be of any suitable construction. For purposes of illustration I have shown this depending portion as consisting of opposite sides 18 and 19 fixedly secured at their upper ends in any preferred manner such as by rivets 20 to opposite sides of the body 15, the lower ends of said sides extending below the upper sides of the intermediate stringers 10 as shown in Fig. 4. Referring to the last named figure it will be seen that the stringer ends of the rolls 6 in the outer rows 21 are reduced and elongated as shown at 22 thus affording a space for the lower end portions of the sides 18 and 19 as the follower moves on the track rails 14 for a purpose hereinafter described.

An operating handle *c* is adapted to cooperate with spaced beveled teeth 23 on the body portion 15 of the follower to move the latter step by step or intermittently on the track rails 14. Any preferred construction of operating handle may be employed for accomplishing this result and in the embodiment shown in the drawings the handle *c* consists of two sections 24 and 25. The section 25 has a cross bar or axle 26 at one end thereof which supports flanged wheels 27 which run in oblong openings 28 formed in the opposite sides of the upper frame 13. A dog 29 has a recessed portion 30 receiving the inner end of the section 25 and is connected thereto in any preferred manner such as by a pivot 31. The pivotal movement of the dog is limited in one direction by means of stops 32 and 33 carried by the dog and inner end of the section 25 respectively. In its normal position the dog 29 extends substantially vertically downward and into the plane of the higher ends of the teeth 23. A second dog 34 is herein shown as pivoted to a depending lug 35 arranged to the rear of the dog 29. When the dogs 29 and 34 are in their normal positions the distance between their lower ends will be a trifle greater than the length of any of the teeth 23 for a purpose hereinafter described. The inner end of the section 24 is recessed as shown at 36 in Fig. 2 and receives the recessed upper end of a link 37. A rock shaft 38 is journaled in the upper ends of vertical ears 39 and 40 carried by the section 25 as shown in Figs. 1, 2, and 3. A crank 41 connects at one end with the rock shaft 38 and its opposite end with a pivot pin 43 which passes through the crank, section 24 and link 37. A connecting rod 44 connects at one end with the dog 29 and at its opposite end with the pivot pin 43. The lower end of the link 37 connects with the dog 34 and as shown this link 37 passes through a slot 45 formed in the section 25 and is surrounded by a thrust spring 46 which serves to project the dog 34 downwardly. A link 47 connects at its opposite end portions with the free end portions of the sections 24 and 25. The latter section 25 bears on the end piece 48 of the upper frame

as shown in Fig. 2, and when the sections 24 and 25 are in their normal positions as shown in Fig. 1 the inner end portion of the section 24 bears on the rock shaft 38.

Assuming that the parts are positioned as shown in Fig. 1 and a sheet of metal is arranged on the bed of rolls 6 and the lower end portions of the sides 18 and 19 bearing on the inner end of the sheet. When the section 25 is pulled by grasping the upturned end portion 48 thereof the dog 29 will abut against the higher end of the end tooth 23. It might here be stated that at the beginning of this movement the wheels 27 will be at the end of the openings 28 farthest from the front of the machine or that nearest to the shear, a fragment of which is shown in Fig. 3 and designated by the numeral 49. Moreover the length of the openings 28 will correspond approximately to the length of plates to be cut from the metal sheet. So that with a continued pull on the upturned end portion 48 the sections 24 and 25 will move outwardly until the wheels 27 contact with the ends of the openings 28. During this outward movement of the handle c the follower will, of course, have moved a distance equal to the length of the openings 28 whereby a portion of the strip equal in length to the distance through which the follower has moved will be projected through the shear. The distance between any two of the teeth is such that after the follower has been moved as previously described and the handle c returned to its first position the dog 29 will be behind the next adjacent tooth so that when the handle is pulled as previously described the succeeding movement of the follower will be equal in length to the first movement previously described and so on for the number of teeth on the follower.

It will be observed that, normally, or before outward movement of the handle c, the dog 29 will be spaced from the higher end of the adjacent tooth so that when the handle c is pulled outwardly it will have moved a distance equal to the width of this space before the dog contacts with the adjacent tooth. It will be further observed that when the dogs are in their normal positions as just described the dog 34 will bear on the lower end portion of a tooth so that during the lost motion of the handle due to the space previously described the dog 34 will move away from the tooth. By virtue of the dog 34 bearing on one end of the tooth it will be seen that the follower may be moved in a direction away from the shear 49. This will be found very advantageous when the depending portion 17 fails for any reason to move the sheet such as when it slips therefrom, in which event it will be seen that by moving the handle c inwardly the follower will be returned to its original position and ready to make a new grip when the handle is pulled outwardly.

By virtue of the clearance which normally exists between the dog 29 and end of the adjacent tooth it will be seen that at the end of an outward pull on the handle the dogs 29 and 34 may be lifted above the plane of the tooth 23 by pulling on the upturned end 50 of the section 24 as shown in Fig. 3, it being understood that before this upward pull is made the handle is moved inwardly until the dog 34 engages with the end of the adjacent tooth whereby the clearance previously stated will be had between the dog 29 and opposite end of said tooth, this clearance of course will be sufficient to permit the said dog 29 to move upwardly without contacting with the tooth.

After the sheet has been subdivided the depending portion of the follower will be moved to that end of the machine adjacent to the shear and in order to hold the dogs clear of the teeth while the follower is being pushed to the opposite end portion of the machine by a new sheet passed over the bed of rolls, I make use of a pair of keepers 51 and 52 attached to the upturned end portions 48 and 50 respectively. The keeper 51 is fixedly secured to the upturned end portion 48 while the keeper 52 is pivoted to the upturned end portion 50 and is arranged in alinement with the keeper 51, so that when the section 24 is pulled upwardly as previously described the keeper 52 will rock and engage with the keeper 51 whereby inward movement of the section 24 will be prevented. For guiding the section 24 in its movement I make use of a loop 53, which embraces the upturned end portions 48 and 50, the said loop being pivoted at one end as shown at 54 to the upturned end portion 50 and having its opposite sides slotted as shown in detail in Fig. 6 and designated by 55, the said slotted portions receiving the opposite ends of a pin 56 extending through the upturned end portion 48.

Although I have shown and described one embodiment of the device it is to be understood that I am not to be limited to the specific structure herein shown and described nor to the particular arrangement of parts, since it will be seen that changes may be made in the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim as new is:

1. In a device for feeding metal sheets to a shear, the combination with a support for the sheet to be fed; of sheet moving means adapted to engage a sheet positioned on the support, and bodily movable means for moving the sheet moving means for the purpose described.

2. In a device for feeding metal sheets to

a shear, the combination with a support for the sheet to be fed; of bodily movable sheet moving means adapted to engage a sheet positioned on the support, and bodily movable means for moving the sheet moving means.

3. In a device for feeding metal sheets to a shear, the combination with a support for the sheet to be fed; of bodily movable sheet moving means adapted to engage a sheet positioned on the support, and reciprocating means for moving the sheet moving means predetermined distances for the purpose described.

4. In a device for feeding metal sheets to a shear, the combination with a support for the sheet to be fed; of sheet moving means adapted to engage a sheet positioned on the support, a series of projections on the sheet moving means, and bodily movable means for engaging said projections successively for the purpose described.

5. In a device for feeding metal sheets to a shear, the combination with a support for the sheet to be fed; of sheet moving means adapted to engage a sheet positioned on the support, a series of projections on the sheet moving means, and bodily movable means including a pivoted element adapted to over-ride said projections successively when moved in one direction and interlock therewith when moved in the opposite direction.

6. In a device for feeding metal sheets to a shear, the combination with a support for the sheet to be fed; of sheet moving means adapted to engage a sheet positioned on the support, a series of teeth on the sheet moving means, and bodily movable means including pivoted elements adapted to clamp any of said teeth for the purpose described.

7. In a device of the class described, in combination with a track; of a wheeled follower arranged thereon a plurality of teeth on the follower, and means for engaging said teeth successively for the purpose described.

8. In a device of the class described, in combination with a track; of a wheeled follower arranged thereon, a plurality of teeth on the follower, and reciprocating means for engaging said teeth successively for the purpose described.

9. In a device of the class described, in combination with a support, and a track thereon; of a follower including a wheeled portion arranged on the track, and a depending portion sliding on the support, and means for moving the follower step by step for the purpose described.

10. In a device of the class described, in combination with a support, and a track thereon; of a reciprocating follower including a wheeled portion arranged on the track, teeth on the wheeled portion, a depending portion sliding on the support, and means for engaging the teeth successively for the purpose described.

11. In a device of the class described, in combination with a support and a wheeled follower arranged thereon and teeth on the follower; of an operating handle having means arranged in the path of the teeth and adapted to engage opposite portions of a tooth, and means for moving the tooth engaging means out of the path of the said teeth.

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

ROBERT S. PAYNE.

Witnesses:
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E. EDMONSTON, JR.