ADJUSTABLE SIDE GRIPPERS FOR ROTARY SHEET-COLLECTING CYLINDERS.


To all whom it may concern:

Be it known that I, Howard M. Barber, a citizen of the United States, and resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Adjustable Side Grippers for Rotary Sheet-Collecting Cylinders, of which the following is a specification.

Heretofore, in sheet collecting mechanism where a collecting cylinder has been provided with end and side grippers cooperating to collect the sheets or groups of sheets thereon, it has been customary to change the side grippers whenever the width of the sheets was changed. This practice made it necessary to keep on hand an assortment of sets of side grippers of different lengths. Furthermore, the changing from sets of side grippers of one length to sets of side grippers of another length required considerable time and labor.

It is of course, very desirable that the mechanism be adapted for collecting sheets or groups of sheets of different widths with the least possible trouble and delay.

My invention comprises a rotary sheet collecting cylinder having side grippers one or both of which may be adjusted to positions for collecting sheets or groups of sheets of different widths, this being accomplished by an adjustment lengthwise of the cylinder of the gripper by adjusting its support or the gripper finger or both, the gripper operating cam being also adjustable to cause it to coact with the gripper stud or roller in its different positions.

My invention is shown for purposes of illustration as applied to the sheet collecting mechanism shown in my United States Letters Patent No. 1,267,554, granted May 28, 1918.

In the accompanying drawings—

Figure 1 represents a horizontal section through a portion of a sheet collecting mechanism, with my invention applied thereto.

Fig. 2 represents a section taken in the plane of the line II—II of Fig. 1.

Fig. 3 represents a detail section showing one of the side grippers, its adjustable support and the adjustable gripper operating cam.

Fig. 4 represents one of the side grippers in top plan.

Fig. 5 represents the same in end elevation.

Fig. 6 represents a section taken in the plane of the line VI—VI of Fig. 1.

Fig. 7 represents a section taken in the plane of the line VII—VII of Fig. 1.

One more webs pass over the feed roll 1 through a pair of coating sheet cutters 2, 3 and guides 4, 5 to the sheet collecting cylinder 6. This cylinder may have one or more sets of end grippers 7 and one or more corresponding sets of side grippers 8. In the present instance, I have shown three sets of end grippers and three sets of side grippers, the side grippers being located a considerable distance back of the end grippers so as to engage the sheets or groups of sheets at a point about midway their length.

The cylinder 9 may be a folding cylinder and its set of end grippers 10 is arranged to take each collection from the end grippers 7 of the cylinder 6 at the proper time. Each set of end grippers 7 is held normally closed by a spring 11; is opened to collect the sheets out from the web or webs, by a stationary cam 12; and is opened to transfer the collection to the cylinder 9 by a movable cam 13 brought into the path of the end gripper stud or roller 14 every one and one-third revolutions of the collecting cylinder 6, by a cam 15 carried by the cylinder 9.

The relative sizes of the cylinders 6 and 9 are such that a collection is transferred every one revolution of the cylinder 9 and every one and one-third revolutions of the cylinder 6. Each side gripper 8 is pivoted at 16 to a supporting bracket 17 adjustable in the end of the cylinder along a line parallel with the axis of the cylinder.

A set screw 18 having its head countersunk in a recess 19 in the periphery of the cylinder serves to lock the gripper supporting bracket 17 in its adjusted position. The gripper finger 20 is adjustable to lengthen and shorten the finger. This adjustment is obtained by providing the finger with an elongated slot 21 through which extends a set screw 22. To adjust the finger, the set screw is loosened, the finger is set to the desired position and the set screw is then tightened to lock the finger in its adjusted position.

The gripper stud or roller 23 is arranged in position to be engaged by a stationary
cam 24 for operating the gripper. This cam is adjustable along a line parallel to the axis of the cylinder. The means for adjusting the cam being shown as a series of screw threaded studs 28 extending from the cam through the side frame of the machine, each of said studs being provided with an inner nut 26 and an outer nut 27, whereby the cam may be adjusted by loosening one nut and tightening the other nut and may be locked in its adjusted position by tightening both nuts.

The side gripper is held normally closed by a spring 28.

The position and length of the cams 24 are such that the side grippers are closed by their spring tension when the end grippers are opened by their cam 12 for collecting and also when the end grippers are opened for transferring, thus maintaining absolute control of the sheets at all times on the collecting cylinder and preventing them from slipping out of register.

From the above description it will be seen that either one or both of the side grippers of a set may be quickly and easily adjusted to suit sheets of different widths and that one or both of the gripper operating cams may be also quickly and easily adjusted into position to properly coact with their gripper studs or rollers.

What I claim is:

1. Sheet collecting mechanism including a collecting cylinder having end grippers and a pair of side grippers cooperating to collect the sheets or groups of sheets thereon, and means for adjusting one or both side grippers to handle sheets of different widths, the side gripper operating cams and means for adjusting one or both of the cams to correspond to the adjustment of the side gripper or grippers.

2. Sheet collecting mechanism including a collecting cylinder having end grippers and a pair of side grippers cooperating to collect the sheets or groups of sheets thereon, the side gripper supporting brackets, and means for adjusting one or both of the brackets along a line parallel to the axis of the cylinder, to adjust the side grippers to handle sheets of different widths, the side gripper operating cams and means for adjusting one or both of the cams to correspond to the adjustment of the supporting bracket or brackets.

3. Sheet collecting mechanism including a collecting cylinder having end grippers and a pair of side grippers cooperating to collect the sheets or groups of sheets thereon, the side gripper supporting brackets, and means for adjusting one or both of the brackets and the finger length of one or both of the grippers, to handle sheets of different widths.

4. Sheet collecting mechanism including a collecting cylinder having end grippers and a pair of side grippers cooperating to collect the sheets or groups of sheets thereon, the side gripper supporting brackets, and means for adjusting one or both of the brackets and the finger length of one or both of the grippers, to handle sheets of different widths.

What I claim is:- 1. Sheet collecting mechanism including a collecting cylinder having end grippers and a pair of side grippers cooperating to collect the sheets or groups of sheets thereon, and means for adjusting one or both of the cams to correspond to the adjustment of the side gripper or grippers.

5. A rotary cylinder having a pair of collecting side grippers, supporting brackets for the side grippers, and gripper operating cams, one of said brackets being adjustable to vary the distance between the grippers, and the corresponding gripper operating cam being adjustable to correspond with the adjustment of the gripper supporting bracket.

6. A rotary cylinder having a pair of collecting side grippers, supporting brackets for the side grippers, and gripper operating cams, said brackets being adjustable to vary the distance between the grippers, and said cams being adjustable to correspond with the adjustment of the gripper supporting brackets.

In testimony, that I claim the foregoing as my invention, I have signed my name this fourteenth day of May 1919.

HOWARD M. BARBER